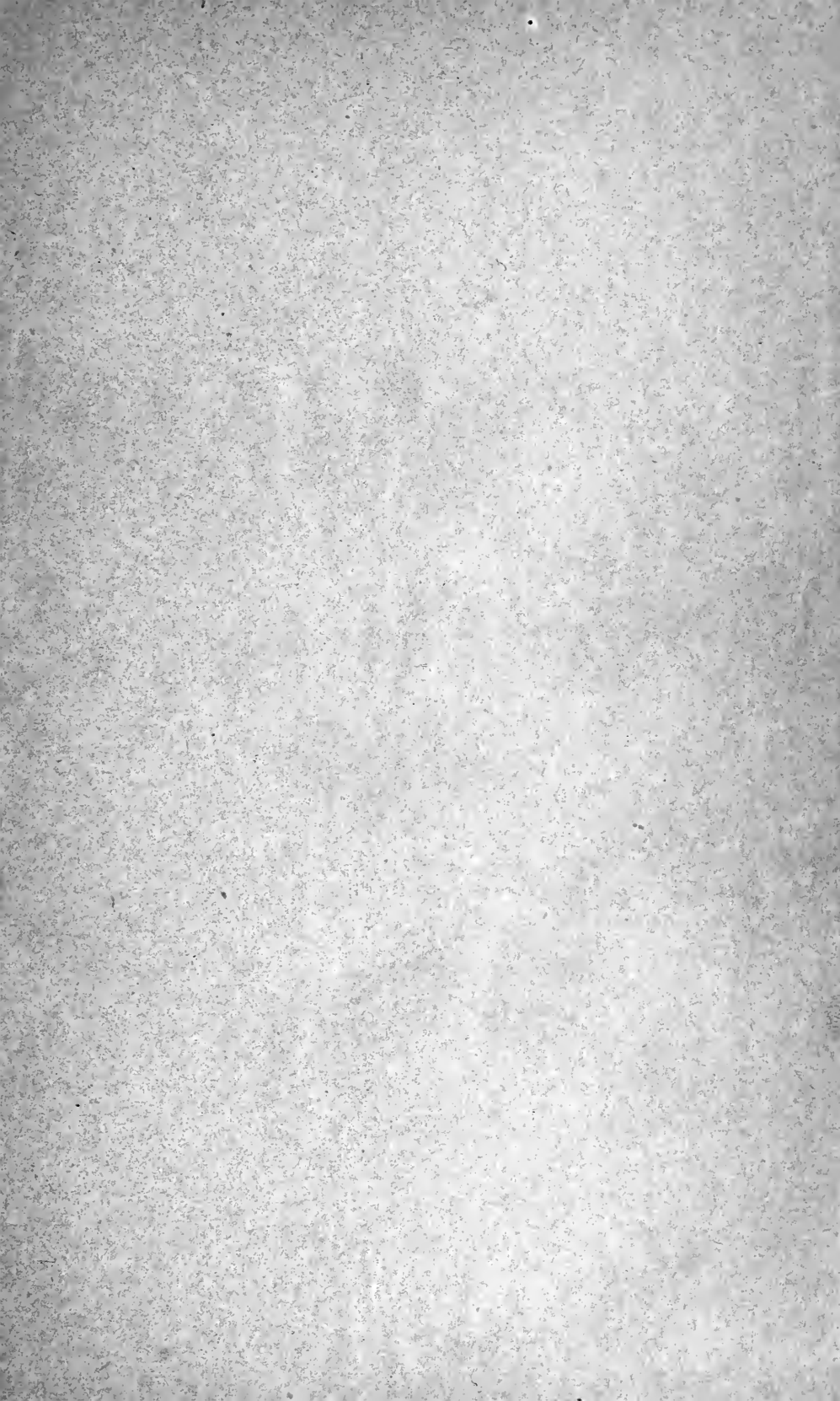
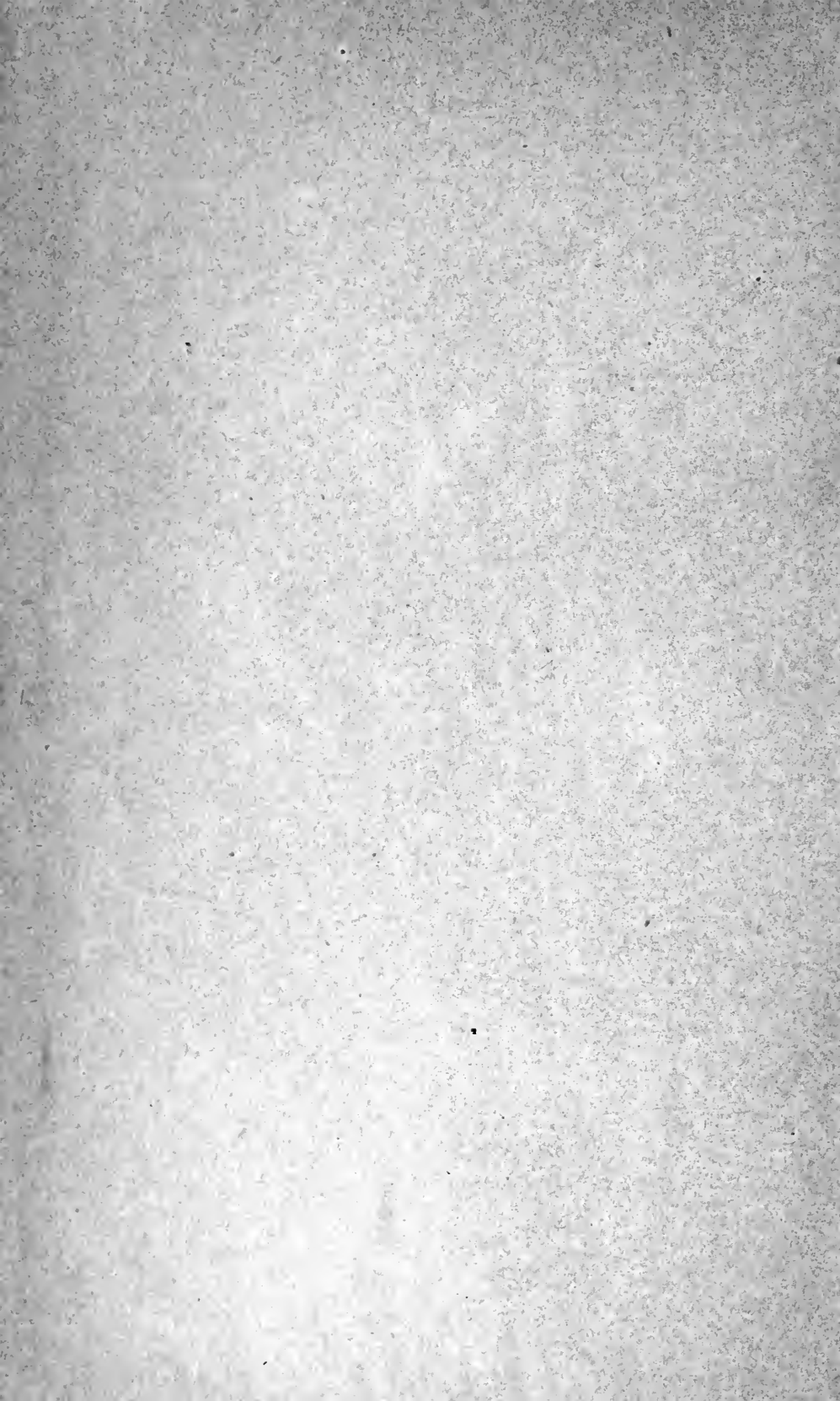


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DISEASES OF WOMEN:

A MANUAL OF

NON-SURGICAL GYNECOLOGY

DESIGNED ESPECIALLY FOR THE USE OF

STUDENTS AND GENERAL PRACTITIONERS.

BY

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THE FREE HOSPITAL FOR WOMEN; PHYSICIAN TO THE DEPARTMENT
OF GYNECOLOGY, BOSTON DISPENSARY.

SECOND EDITION, REVISED AND ENLARGED.

WITH NUMEROUS ILLUSTRATIONS.



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TO

WILLIAM H. BAKER, M.D.,

TO WHOSE SKILL AS A TEACHER, TO WHOSE EXAMPLE

AS A PHYSICIAN, AND TO WHOSE UNVARYING

KINDNESS AS A FRIEND, THE AUTHOR

OWES SO MUCH,

This Book

IS AFFECTIONATELY DEDICATED.



PREFACE TO SECOND EDITION.

IN the preface to the first edition of this book, which was published less than three years ago, the hope was expressed that the student would find the work of value as collateral reading. From what has been told me by those who are engaged in teaching, and from the testimony of the students themselves, I believe that hope has been fulfilled.

The changes which have been made in this second edition have been for the most part additions in the way of methods of treatment which have been found of practical value. The last few chapters, however, seemed to call for a more thorough revision, and they have been for the most part re-written.

Tents have so far fallen into disuse that a separate chapter for their consideration seemed unnecessary, and the important part of that subject has been incorporated with the chapter on Metrorrhagia.

The subject of Diseases of the Tubes has been more fully treated and brought into harmony with the present views as to their pathology; and the chapter on Pelvic Peritonitis and Pelvic Cellulitis has been thoroughly re-written.

It is hoped that these changes will make the book more acceptable to the general practitioner and more valuable to the student.



PREFACE TO FIRST EDITION.

WITH the present multiplicity of gynecological treatises and text-books, it may well be questioned what useful purpose a new one can serve. It has, however, seemed to me that there is no book which exactly fills the gap which this one is intended to. It has two main objects: in the first place, to give the student clearly, but with considerable detail, the elementary principles of the methods of examination, and the simple forms of treatment of the most common diseases of the pelvic organs; and, in the second place, to help the busy general practitioner to understand and treat the gynecological cases which he meets with in the course of his everyday practice.

These two objects have defined the scope of the work. All surgical gynecology, except such simple procedures as demand no special skill, has been omitted, and the very rare affections which even the specialist seldom sees have also not been considered. For the sake of brevity, and to avoid confusion, the treatment has been mainly confined to such measures as have been practically found of the greatest benefit in the author's hands. Pathological anatomy has been left out, and diagnosis and treatment have received the most attention.

It is hoped that the student will find the book of value as collateral reading. It is not intended to be used as a text-book, as its scope is too limited; but special attention has been paid to the description and elucidation of many

minor, though important, points which are ordinarily omitted in text-books, but which the student will find of great value in beginning practice. The book aims to be a practical one, and questions which are still matters largely of theory have not been considered.

I desire to express my thanks to Dr. H. P. Quincy, for his assistance in the preparation of the original drawings; also, to Dr. R. A. Kingman, for taking several photographs.

5 PARK SQUARE, BOSTON, June, 1889.

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DISEASES OF WOMEN.

CHAPTER I.

INTRODUCTORY PRINCIPLES.

THE treatment of diseases peculiar to women, more than is the case with some other specialties—for example, those of the diseases of the eye and of the ear—is common property of the profession. This arises from several causes. In the first place, its specialization is a matter of comparatively recent date. The immense strides in this department, especially as regards operative treatment, have all been made within a generation, and the majority of physicians, particularly of those graduating more than fifteen years ago, and whose field of practice has lain outside the large cities, have been and still are in the habit of treating all gynecological cases which come to them in the course of their regular practice.

In the second place, the patients themselves naturally consult their family physician for this class of troubles. The medical attendant who has been with them in their confinements, who has brought their children through severe illnesses, and who has acquired the confidence which is the result of long years of intimate relationship, is the one to whom

they naturally turn. There is also, from the very nature of the troubles themselves, with most patients a reluctance to discussing them with a stranger.

Again, the public have demanded in this class of affections less thorough and scientific treatment than is the case with other specialties. Natural modesty leads a woman to relinquish treatment as soon as she can possibly persuade herself that she is well enough to go without it. The results of treatment are less apparent than with diseases of the eye, or the ear, or the skin, for example, where the patient can judge very accurately of the benefit received.

Many women, perhaps most, look upon more or less trouble with the sexual organs as natural, and to be borne in silence. A large proportion of women never menstruate without pain, which they learn to endure without complaint in the years of young womanhood preceding marriage. Childbearing brings its own special discomforts and ailments, which persist until the establishment of the menopause makes the woman feel that she is through with her active sexual life and is too old to be patched up. Thus many a woman suffers through life; her family physician, in many instances, encouraging her to believe that her troubles are only those natural to her sex with its peculiar functions.

This state of affairs has changed very much within the last few years, and will change still more. More time is devoted to teaching this branch in the medical schools, and women are learning from their physicians and from each other that suffering and pain are not their unavoidable lot, but that modern science

and thought have devised means of helping them if they will avail themselves of them.

Hence, more is demanded of the physician to-day than twenty-five years ago. It is expected that the general practitioner shall be very thoroughly conversant with the diagnosis and treatment of a large part of the diseases which are included under the name gynecology.

If the case proves to be one out of the usual course, obscure or requiring special operative treatment, he should be able to recognize the fact, and refer his patient to the specialist, who, as a result of a large and varied experience, has acquired special skill. A large part, however, of the more common affections, such as disorders of menstruation, displacements, and inflammatory processes, should be thoroughly understood and successfully treated by any well-educated physician.

That this is not the case—that many practitioners, who are thoroughly at home in the general practice of medicine and surgery, fail in the diagnosis and treatment of this class of cases—may in a measure be accounted for on these grounds. The opportunities for the practical study of this branch of medical science are, from the nature of the case, few, and only to be had in the large cities, and even there have only within the last few years been placed within reach of the medical student. Now, however, the best medical schools, by increasing the length of the period of study necessary for a degree, and by recognizing the importance of this specialty, are giving additional opportunities to the student, and the establishment

of polyclinics in our large medical centres is doing the same for the post-graduate and practising physician. As time goes on, that difficulty will be gradually overcome.

A second reason why this branch has been neglected by the profession at large is that there is a prevalent impression that the treatment of diseases of women necessitates a high degree of special skill and the use of a formidable array of instruments. It is supposed to be complicated, and to require more time than a busy man can well afford. The text-books on this subject, with their long descriptions of operative procedures, and their numerous cuts of instruments, are, perhaps, partially responsible for this prejudice. The objection will fall to the ground when it can be shown that the diagnosis and treatment of diseases of the genital organs really rest on a few simple, general principles, which, if mastered, will make the physician as much at home in this department as in any other of medicine.

Here, as in all branches of medical science, special pains must be taken to get well grounded in the A B C of the subject, and this necessary knowledge is something which cannot be acquired from books, but must be the result of careful and frequent examinations of patients. The first great requisite for anyone who undertakes to treat even the simplest case of uterine disease, is familiarity with the method of bimanual examination, and the use of the few simple instruments which assist in making a diagnosis when the former method fails. A second important factor is the recognition of the fact that in general the

treatment of the larger part of the diseases of the pelvic organs met with in every-day practice is in accordance with certain well-defined principles, which, if simply formulated and clearly understood, will do away with much of the obscurity which exists in the minds of the profession at large with regard to this subject.

I have, therefore, in writing this book, tried to keep two objects distinctly in view: First, to explain simply, yet clearly and in sufficient detail, the methods of examination and the various manipulations necessary in the diagnosis and treatment of this class of cases; and, second, so to classify the various disorders of the pelvic viscera with which we have to deal, partly according to prominent symptoms, as to render their recognition easy and to place their treatment on a common-sense basis.

CHAPTER II.

METHODS OF EXAMINATION.

Verbal examination. When a patient is seen for the first time, it is essential to get from her a full history of her troubles. This includes former symptoms which have a bearing on her case, and her present condition. Such a history should be written down at the time, and preserved for future reference. The particular form used is of little importance. A number of blank forms have been devised and advocated by different writers which are of value where a number of long histories have to be taken in a short time, but in general they are unnecessary. If the important features of case-taking are remembered, the particular order is of small account.

Aside from such general questions as hereditary tendencies and previous serious illnesses, the main points of inquiry should be with reference to the sexual organs and their functions. Preliminary questions which are important, are as to whether she is married, or single, or a widow, the number of children, and their ages; miscarriages, and if there have been such, their date, at what period of gestation they occurred, and from what cause. Then, present symptoms, and how long they have lasted. The menstrual process should be very carefully inquired

into, the date of its appearance, whether regular or not, and if irregular, in what way, the time it lasts, the amount as estimated by soiled napkins and clots, and the presence or absence of pain. This last should be most fully investigated. The time of its occurrence with reference to the flow, its intensity and duration, its exact seat and character, are all essential facts in forming a diagnosis. The same is true of pain occurring independently of the menstrual period. A careful study of this symptom, which is so common with women, should throw a good deal of light on the causation and diagnosis of diseases of the pelvic organs.

The presence and character of leucorrhœal discharges should then be inquired into, and inasmuch as bladder and rectum are properly included in the pelvic viscera, their functions should be interrogated.

Unless some special feature of the case renders it advisable or necessary, the sexual relations need not be inquired into.

In most departments of medicine the rational symptoms will, as a rule, enable the observer to form a probable diagnosis, or at least to narrow the choice to two or three diseases. Not so in gynecology. Here there are so many symptoms common to so many widely different affections, that only rarely can a probable diagnosis be made without a physical examination. The verbal examination may, therefore, be considered a preliminary step to the physical, and aside from the information which it yields, the asking and answering of questions place physician and

patient "en rapport," and pave the way for the more important and more trying ordeal.

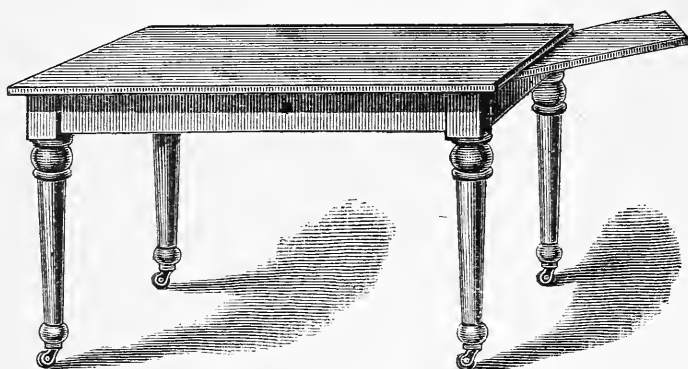
Physical examination. The interests both of patient and physician alike demand that the method of examination employed should be so chosen as to secure thoroughness on the part of the physician, with as little discomfort to the patient as possible. For this purpose a table, or a chair which may virtually be converted into a table, should be used. Its advantages are obvious. It gives a firm surface at the right height for the introduction of the finger in the bimanual examination, and for the entrance of light into the vagina when the speculum is used. A sofa should never be made use of, much less a bed. Both are too low; and on a bed the patient so sinks into the soft mattress that a satisfactory examination is well-nigh impossible. As a rule, when a patient is too sick to be moved from the bed, a thorough examination, either bimanually, or with the speculum, is rarely necessary.

Table or chair. At the physician's office the table or chair is an integral part of the office furniture. There have been made and are for sale a large variety of both these articles of furniture, ranging from the simplest to the most elaborate. The special circumstances of each physician will determine the kind he will find most useful. Where he has a large and varied office practice, especially if it embraces surgery, one of the simpler forms of adjustable chairs, which can be modified to suit the particular need of the moment, will perhaps be found the most convenient. If a table is used, my own experience leads me

to believe that the simpler it is the better. Any carpenter can make one of hard wood, with strong legs, and a sliding foot-rest at one corner, for from ten to fifteen dollars, which will answer every purpose that the more elaborate tables do. It is not so æsthetic, perhaps, but when covered with a cloth it is not un-ornamental.

It should have the following dimensions: Length, four feet; width, two feet; height at upper end, thirty inches; at lower end, thirty-two (Fig. 1). At the

FIG. 1.



Examination table.

lower right-hand corner, as one faces it, is the foot-rest, which should slide out at an angle of 45 degrees with the sides, so as to accommodate the feet when the patient is in Sims's position. It is higher at the lower end, so as to favor the action of gravity in allowing the abdominal viscera to recede out of the pelvis. Stirrups for the feet, when in position on the back, are unnecessary, for if the patient flexes her knees so as just to bring the heels comfortably upon the edge of the table, the hips are brought low enough down to

render the vaginal examination easy. The castors should be strong and well oiled, so as to permit of easy motion in any direction.

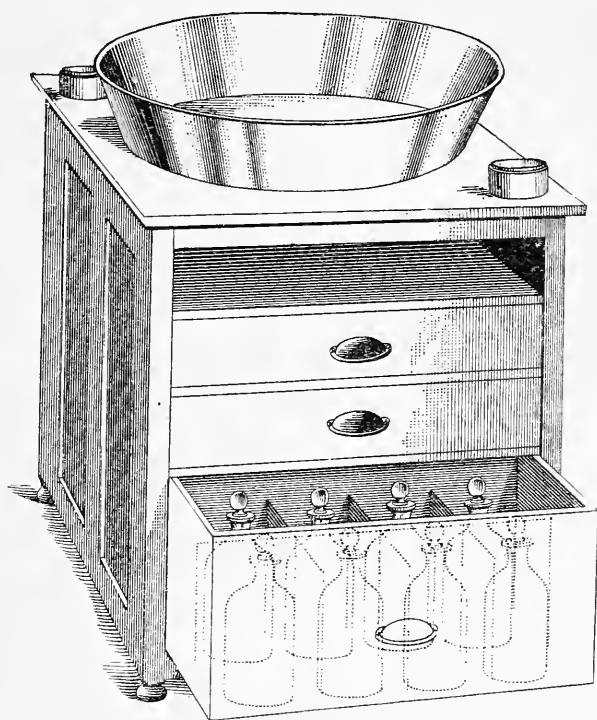
It has been claimed as an argument against a table, and in favor of a chair, that the table looks formidable, and patients object to getting upon it. Such has not been my experience, and when arranged as will be explained later, it has lost so much of the aspect of a table that this objection can be dismissed. While the various chairs that are sold have, as has been said, a greater range of adaptability for all sorts of cases occurring in the course of general practice, yet in purely gynecological work their very complexity is a source of annoyance, nor does it add at all to their usefulness. The simple table answers every purpose. The two positions, the dorsal and Sims's, are the only ones that the great majority of patients need assume for the most thorough examination, and the only change needed in the table in passing from one to the other, is arranging the rest for the feet. The arrangement by which the surface of the table or chair is given a lateral inclination, so as to exaggerate the Sims's position, is wholly unnecessary. In the rare cases where it is desirable to make the patient assume a still more prone position than Sims's, as, for example, in examining the rectum, a pillow pushed under the buttocks will accomplish the object.

Many tables are objectionable from the fact that they are provided with a set of drawers for instruments and apparatus which fills up the front of the table, so that the operator's knees are seriously incommoded when using the speculum. It is decidedly

better to have the space between the legs free, so that the physician can sit comfortably and well up to the table.

Stand for instruments. A small, supplementary piece of furniture to hold the basin of water, with a shelf and one or two drawers, will accommodate

FIG. 2.



Stand for instruments.

instruments and all the moderate armamentarium which is necessary, and can be procured at a moderate expense. The one figured here (Fig. 2) has a marble slab top, with a round opening in which the basin rests. It is large enough to allow space at the

corners for soap or other lubricant, jars of cotton dressings, etc. The shallow open space under the slab is lined with zinc, and is used as a receptacle for soiled instruments; they are thus out of sight of the patient. This space, when not in use, is closed with a narrow strip of wood in harmony with the rest of the front.

Below are two shallow drawers for instruments, cotton, and various other appliances; and last of all is a deep drawer divided into two compartments, in the forward one of which are places for eight or ten bottles, and the other may be used as a receptacle for pessaries.

There should be provided, also, a jar with a cover, into which bloody or foul dressings may be put and kept out of sight. Bowl and pitcher, and receptacle for water after it has been used (unless a water-closet is convenient), will, of course, be added to the office furniture.

The physician starting in practice will very soon find out the necessity of having such arrangements about him as will enable him to examine easily and thoroughly.

Examination at patient's home. It is often a matter of more difficulty, however, to arrange such conveniences at the patient's home. She herself, and too often the physician, is contented to accept what is convenient rather than take the trouble to have what is best. The examination, to be thoroughly satisfactory to both parties, should be made in the way the physician is accustomed to; otherwise, he will not feel that he is doing his best by his patient, nor

that his examination is as complete as can be made. Therefore, insist upon having a table, and, as a rule, a satisfactory one can easily be provided. An ordinary library or dining table, or, what never fails in the poorest home, a kitchen table, will answer every purpose. If it cannot be brought to the sick-room, one may be improvised by placing together two smaller pieces of furniture, as a commode and wash-stand, or small table and bureau, or by laying the leaf of a dining table or two ironing-boards side by side, from one small table to another.

Arrangement of table. The table should be arranged in this way: A thick blanket or comforter is folded sufficiently to make a comfortably soft surface to lie upon, and placed upon the table. This is covered with a sheet, a pillow placed at the head, and the table resembles a short bed. When so prepared, it has to a certain degree lost its look of a table, and is rarely objected to. When it is kept ready for use in the office, the thin mattress or other covering should be fastened firmly down, so that it may not be displaced by the movements of the patient.

Arrangement of patient. If it can be arranged beforehand, the patient should be instructed to see that the bowels and bladder are empty. The corset and all skirt bands must be loosened, or if she is at her own house all extra clothing should be removed and she should be dressed in a loose wrapper. The loosening of the clothing is a bugbear to the patient, but it is a matter of great importance both as regards her comfort and the ease with which the examination is made, especially when the patient is in Sims's posi-

tion. A single tight band will often seriously interfere with a good view of the cervix through the speculum. If the patient wears closed drawers, she should be instructed to remove them.

Dorsal position. The patient is directed to stand upon a chair or stool placed at the foot of the table, and raising all the clothing behind, to sit upon the edge as low down as is comfortable. She then lies back, a pillow is put under her head, and she raises her feet and rests them with the heels upon the edge. A sheet is placed over her lap as she sits down, and hangs down in front so as completely to cover the legs. The hand should then be passed under the sheet, and the clothing pushed up above the knees, so as to admit of their being separated with ease. In this way all exposure is avoided, a matter of a great deal of importance to the patient, who, though she may not express it, will appreciate any care on the part of the physician in this regard.

Vaginal examination. The so-called combined or bimanual examination is the most important of all gynecological manipulations, and should be thoroughly understood. In the majority of cases the diagnosis may be made solely by it, instruments being necessary only to confirm what the fingers have already found out. I shall, therefore, describe the method as minutely as possible.

Lubricants. A bowl of warm water with castile soap or some emollient should be at hand. I prefer soap in dispensary and hospital work, inasmuch as after the examination the soap with the secretions which adhere to the finger can be together much

more easily washed off than can any oily substance. The objection to it is that in very sensitive women the soap will sometimes cause smarting and irritation.

Vaseline, vaseline and cold cream, olive oil, or any smooth ointment is better to use in private practice. Before introduction the hand should be well warmed and lubricated, so as to render the entrance of the finger as smooth and easy as possible. In passing the finger into the vagina avoid any sudden movements; the quieter and steadier the doctor is, the less disturbed will the patient be, and in the case of a nervous woman who dreads the examination this is very important.

Advantages of left hand. The more thoroughly the touch is educated, the easier will it be to make a diagnosis. For this reason it is well to use in general the same hand for all vaginal examinations, and there are certain advantages in selecting the left hand for this purpose. In the first place, the left forefinger will explore more easily the left side of the pelvis, and it is a fact that pathological changes occur more often upon the left than upon the right. In the second place, it leaves the stronger right hand to make counter-pressure over the abdomen. In the third place, which is the most important consideration, the right hand is free with which to use instruments or perform any other manipulation necessary. It is occasionally desirable to pass the probe with the patient on the back, or to explore the interior of the uterus with the finger, or to remove small tumors in the cavity of the uterus. In such cases the educated touch of the left hand will distinguish the various

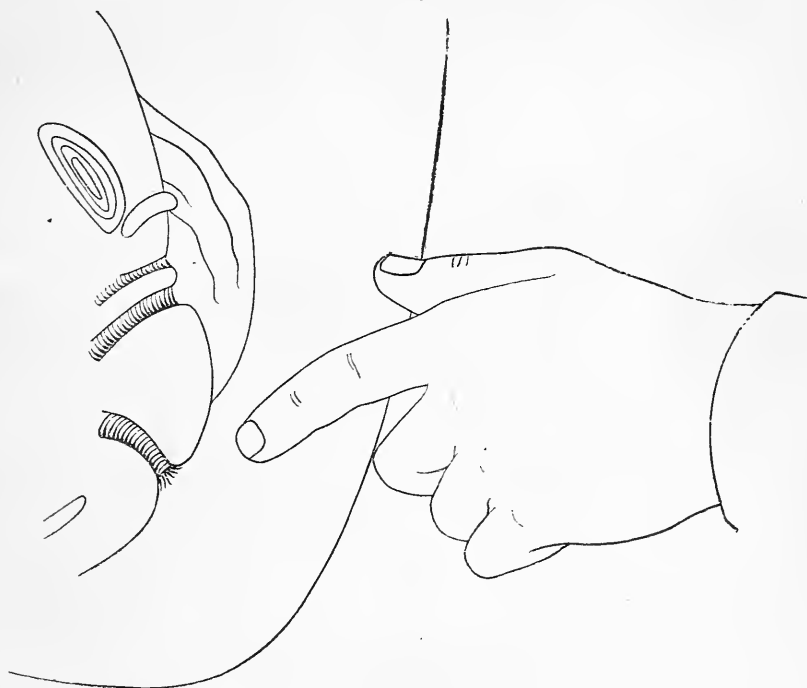
parts, while the right hand will easily use any instrument which is necessary.

As a rule, only the forefinger should be used. In the majority of cases one can very satisfactorily explore the pelvis with a single finger, and the introduction of two fingers is painful. Under ether, or where the entrance to the vagina is very wide, there is no objection to the use of two, and a clearer idea of the relationship of tumors may often be gained by it.

Introduction into the vagina. Having well lubricated the forefinger of the left hand, it should be carefully introduced into the vagina. This may be done by the sense of touch, under the sheet which falls down over the patient in front, and it is often a relief to a sensitive woman to be spared the shock to her modesty which the exposure necessary for the inspection of the vulva entails. If the patient is lying in the middle of the table, with the knees abducted at equal angles, the cleft between the nates and the entrance to the vagina will lie directly in the median line, and the finger easily finds the vulvar orifice. In the position in which the woman is lying the opening of the vagina is often, especially in thin women, very near the level of the table, at most not more than two inches above it. The finger, therefore, should be directed downward toward the table (Fig. 3), and should aim to strike in the neighborhood of the perineum or anus. This will avoid hitting the clitoris or meatus urinarius, which are sensitive parts, the touching of which is apt to cause a shrinking and muscular contraction on the part of a nervous woman. It is then carried directly upward over the perineum and

fourchette into the vagina. This is easily accomplished, as the labia minora end a short distance above the fourchette, and the hair, which may grow luxuriantly, is also wanting on the lower border of the vulva and perineum. Passing the finger from above, both hair and the labia are liable to be pushed before it into the vagina, greatly to the discomfort of the patient.

FIG. 3.



Finger in position for examination.

In a virgin, or a person of a nervous temperament, it occasionally happens that the finger, after it has got within the vulva, will be so tightly grasped by the firm unyielding perineal body that it is with difficulty passed onward. If the flexor side of the finger

is turned downward, and steady pressure made on the perineum for a fraction of a minute, the muscular contraction will usually yield. A slight rotary motion will often facilitate the introduction of the finger where the entrance is small.

Examination of vagina. The direction of the vagina as the woman is lying on her back, if the perineum is intact, is first downward and backward toward the hollow of the sacrum, gradually curving round more in the axis of the body. If the perineum is wanting, it more nearly approximates a straight canal.

As the finger passes over the perineum into the vagina, the state of the perineal body can be judged of, though its exact condition must be determined by sight. The examining finger, as it passes along the vagina, notes the condition of the vaginal walls, whether they are lax or firm, smooth or rough, dry or bathed with secretion, unduly hot, the presence of cicatricial bands or secretions, or any other abnormalities or peculiarities.

The finger is passed on until it reaches the upper end of the vagina, where it finds the cervix uteri. This is a firm conical-shaped body, projecting into the vagina, having a small orifice at the end, the os externum. Its shape, size, direction, and consistency should all be noticed, as these may vary almost indefinitely, and are extremely important as points of diagnosis.

The posterior vaginal wall is attached higher up on the cervix than the anterior, hence we have a deeper posterior cul-de-sac. The finger should be carefully passed all around the cervix, front and back and at

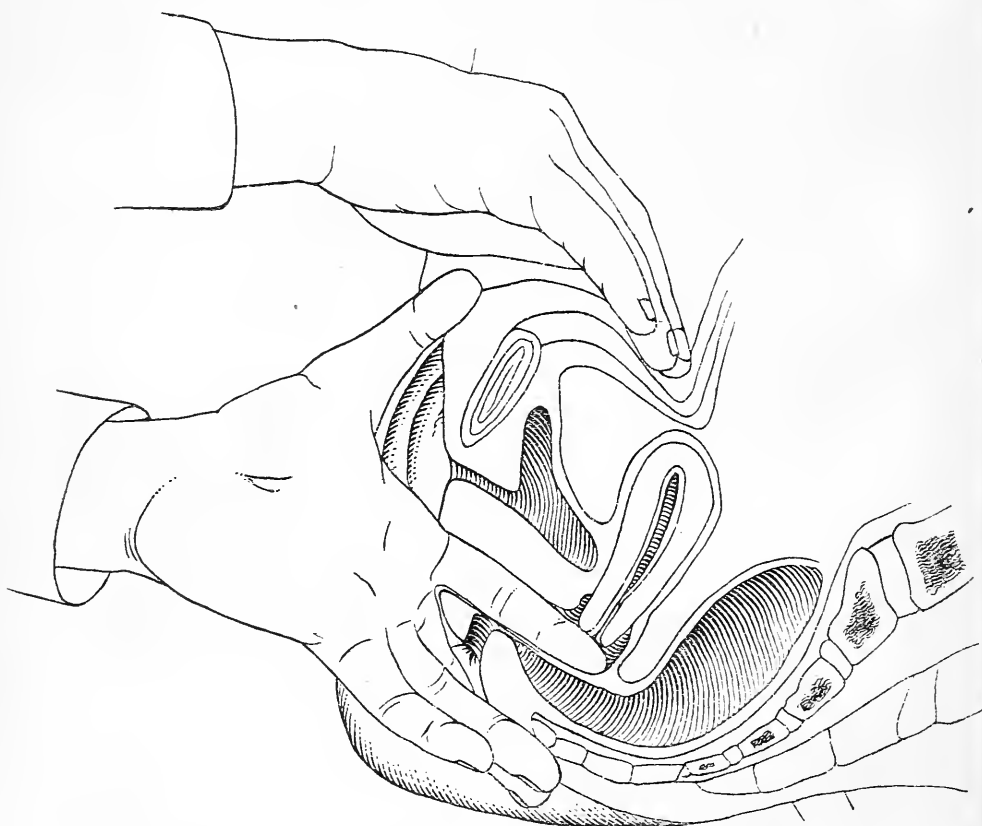
the sides, to detect the presence of any abnormal hardness, as the body of the uterus, a tumor, or inflammatory thickening.

Bimanual examination. At the same time that the forefinger of the left hand is passed into the vagina, the right hand should be carried under the clothing on to the abdomen, in order to make counter-pressure. In fact, the examination may often be advantageously begun in this way, especially in the first examination of a nervous, hysterical woman, as it gradually paves the way for the more trying vaginal exploration. No examination of the vagina alone should be considered sufficient; in fact, I consider the bimanual examination as the keystone of gynecology. Its neglect causes numerous mistakes in diagnosis which might readily be avoided.

The object of the conjoined manipulation is to map out as completely as possible the contents of the pelvis and their condition. To accomplish this it is necessary to determine what lies between the examining finger on the inside and the hand upon the outside. It is here more than anywhere else that the education of a delicate touch becomes of value. To determine accurately the position of the uterus, its size and shape, the presence of tumors, their relation to the uterus and ovaries, the position and size of the ovaries, whether a tumor is solid or not—these are but a few of the more obvious facts which we seek to find out by our bimanual examination. The method is in general to depress the abdominal parietes with one hand, and raise the contents of the pelvis with the other, so as to bring them between the two hands,

and thus determine their condition (Fig. 4). Definite rules cannot be given how best to do this, but some hints may be of use. The ability to make the bimanual examination easily and well comes only with long and careful practice.

FIG. 4.



Bimanual examination.

I am asked every year by the class of students who make these examinations for the first time, where on the abdomen they shall make pressure and how hard they shall bear on. I tell them that, as a rule, a little

above the upper margin of the growth of the pubic hair is a good landmark from which to begin, as that in general represents the place where the fundus of the uterus in its normal position would be felt. The vaginal examination will usually give hints as to misplacements or swellings in one or another part of the pelvis, if such exist, which will lead to the place of pressure being varied to suit the individual case.

The degree of force to be used in making pressure is something which cannot be communicated, but must be the result of experience. If the abdominal walls are lax, as is usually the case in multiparæ, firm, steady pressure will enable the examiner to depress them sufficiently to map out the relations of the pelvic organs.

When a reasonably firm pressure has depressed them as much as they can be without pain to the woman, several short, quick movements with the tips of the fingers will bring the hand still farther down into the pelvis, and the indefinite rounded contour of the fundus may be felt. This is often a difficult point for the beginner to recognize. He is expecting something plainer, with definite outlines, like the oval fundus as represented in the text-books. The thing to be felt for and to be noted is the presence of a solid body between hand and finger. If the fundus is back, the movements before described will not reveal anything but soft tissues. The movements of the finger in the vagina and the hand on the outside must be simultaneous.

Difficulties in bimanual examination. In nulliparæ or virgins, the bimanual examination is often difficult,

owing to the rigidity of the muscles, which, on any attempt at pressure, contract so firmly that no impression can be made. This is sometimes the result of tenderness, but more often of nervousness. If the latter is the case, the patient's attention may be distracted, and some relaxation gained. All sudden movements should be avoided. Steady but constant pressure will sometimes overcome the rigidity. Occasionally a single impulse may be obtained in the following way. The patient is directed to draw a long breath, and at the moment of expiration, as the abdominal walls sink and the diaphragm rises, the hand quickly follows the movement downward into the pelvis, and the particular information wanted may be secured. Quickness of perception comes into play here, as such a manœuvre may be impossible to repeat a second time. But to the educated touch a single impulse may reveal the normal or displaced uterus, the presence of a tumor, or a mass of indurated tissue.

Fat is a second obstacle to the bimanual examination. Where the abdominal walls are very thick, nothing can be felt through them; and there is a second difficulty in these cases, as the examining finger in the vagina cannot reach so high in the canal, owing to the fact that the perineum cannot be so well pushed up when the nates are large. In such cases, and in fact in any case where it is important to examine carefully the contents of the pelvis, ether should be given to secure full relaxation.

With beginners it is a common complaint that in many cases their fingers are not long enough to reach

the cervix, much less the posterior cul-de-sac. Much of this comes, of course, from the fact that the touch is not yet educated to distinguish what it is feeling. Nor is the amount of force with which the perineum may be pressed up understood. This difficulty seems to me, however, partly to arise from a faulty method of disposing of the other fingers of the hand. The main obstacle to reaching high up into the vagina with the examining finger is the rigid perineal body.

FIG. 5.

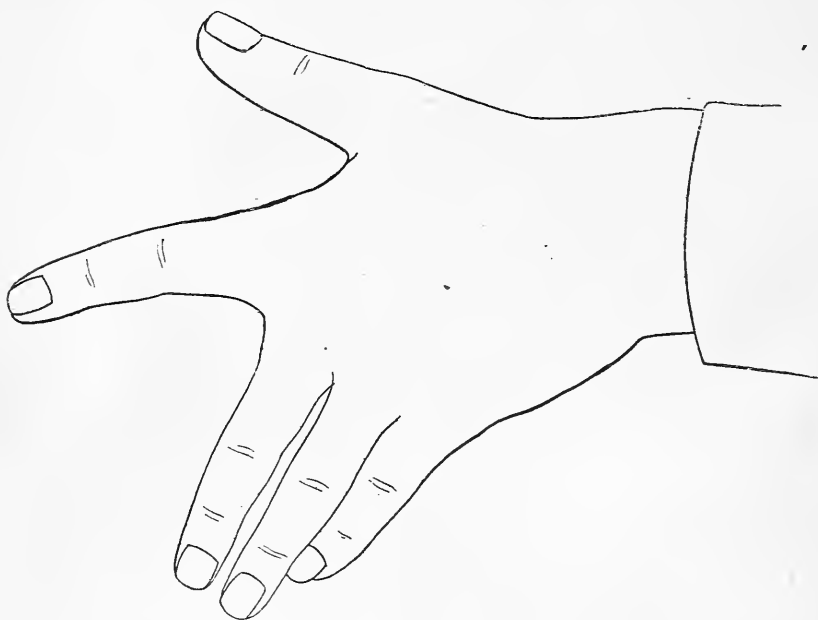


Position of examining finger as usually advised.

This must be pushed up as far as possible. The directions usually given in text-books are that the remaining three fingers of the examining hand should be flexed upon the palm, and the perineum pressed up with the first phalanges (Fig. 5). This, however, represents a broad surface of at least two and a half inches each way, which, in a stout woman, would so

impinge upon the prominent nates on either side as virtually to prevent the pressing up of the perineum to its fullest extent. If, however, the remaining fingers of the hand are extended along the cleft between the nates (Fig. 6), the perineum is pressed up by the web between the index and middle fingers, and the vagina is materially shortened. Of all the text-books

FIG. 6.



Position with fingers extended.

I could consult, Hart and Barbour, and the *Manual of Obstetrics*, by Dr. A. F. A. King, are the only ones which recognize the importance of this arrangement of the fingers.

The most satisfactory bimanual examination is made in cases where the pelvic contents are movable and can be raised from below, and at the same time the

abdominal walls depressed. To test the mobility of the uterus the finger of the left hand should be placed beneath, and somewhat behind, the cervix, and with a series of short tilting movements the organ raised to meet the resistance of the hand from above.

In the case of rigid abdominal walls, if the uterus is freely movable, it may be pressed up so as to be appreciated by the hand simply placed firmly over the abdomen. On the other hand, if the uterus is fixed, but the abdominal walls lax, these may be depressed, so as to convey an impulse to the finger resting on the cervix. The examination in these cases, while relatively unsatisfactory, may yet be all that is essential.

The differences that we find on making the bimanual examination when the uterus is in a normal position, or in one of the malpositions, will be more fully treated of when we come to the consideration of the various displacements of the uterus and their treatment.

Examination of tubes and ovaries and cellular tissue. Though the uterus is the largest and most prominent organ in the pelvis, it is not by any means the only one which is liable to be diseased. We should seek to find out, by our bimanual examination, the condition of the tubes and ovaries, and of the cellular tissue surrounding the pelvic viscera. For this purpose the finger should be passed around the cervix, and the presence of anything abnormal noticed. If there is a mass behind the uterus, felt through the posterior cul-de-sac, its differentiation from the body of the uterus, if not satisfactorily determined bimanu-

ally, should be made by the passage of the probe, except when contra-indicated, as will be described later. We examine the lateral cul-de-sacs for pathological conditions of the tubes and ovaries and broad ligaments.

Ovaries. The normal ovaries are small, almond-shaped bodies, situated on either side of the uterus, from an inch and a half to two inches distant from it, and a little below the level of its upper surface. When of their normal size, and in their normal position, they are felt in the following way: The left forefinger (for the left ovary) is carried deeply into the left cul-de-sac, while the hand on the outside is placed well down toward the groin of the corresponding side. Both finger and hand are then approximated as nearly as possible at as high a level as the finger inside can reach, and ~~then are together~~ drawn downward, letting the tissues slip between them. If the abdominal walls are sufficiently relaxed and the sense of touch is acute, the small ovary may be felt as an elastic body slipping between the finger and hand. In the majority of cases the normal ovaries can be felt; when the subject of pathological changes, however, their detection is much easier, as they are larger and usually displaced. Under these circumstances they tend to prolapse, and thus come to lie nearer the uterus, most often at the side, occasionally behind in Douglas's cul-de-sac; very rarely in front, between the bladder and the uterus.

Tubes. The tubes, when normal, cannot usually be differentiated from the general mass of more resisting tissues which comprise the broad ligaments. When

enlarged, from dropsy or inflammatory processes, their contour may be made out.

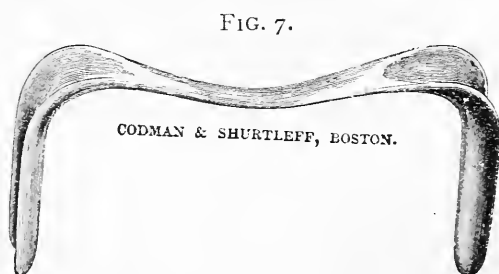
The results of cellulitis and peritonitis are rarely more than indefinite thickenings at either side of the uterus, which give a greater sense of resistance to the examining finger.

Visual inspection. Before a change of position is made, if the history of the case points to any affection of the vulva, a visual inspection of the parts should be made. This can best be done with the patient on her back. Seated in front of the patient, the labia can be held aside, and the condition of the hymen, perineum, meatus urinarius, vulvo-vaginal glands, etc., be accurately determined. By directing the patient to strain as if at stool, the existence and amount of rectocele, cystocele, and prolapse or procidentia can easily be seen. The thickness and strength of the perineal body can also be best determined with the patient in this position. The forefinger of one hand should be passed into the vagina, that of the other hand into the rectum. The resistance of the sphincter ani can be readily overcome by asking the patient to strain down while the finger is being passed in. The perineal body is then examined, its thickness and strength being easily determined by the two fingers.

Examination with speculum. It is usually important and advisable, after the bimanual examination is finished, to supplement it by an examination with the speculum. While the bimanual examination is by far the most important, and in a fair percentage of cases is all that is absolutely necessary for diagnosis, yet there are certain facts, which it is desirable to know,

which can only be discovered by the use of instruments. For example, it is exceedingly difficult for the most practised touch to distinguish between a case of moderate laceration of the cervix, and an erosion due to long-standing endocervicitis, a difficulty which the use of the speculum immediately clears up. The size of the womb may be roughly estimated bimanually; its accurate measurement can only be made by passing the probe. To determine the calibre of the canal, different sized instruments must be passed into the uterine cavity. Again, it is often a wise precaution to verify the position of the uterus as made out by the bimanual examination, by the passage of the probe. Such instrumental examination can, I am confident, be best made with a Sims's speculum, the patient being in the semi-prone position.

Sims's speculum. Sims's speculum (Fig. 7) consists of two blades running at right angles to a shank which unites them. The narrowest blade is a little wider



Sims's speculum.

than the forefinger, and is called the vaginal blade. The other is wider, and is suitable for examining women with capacious vaginae, or for operating. It

is virtually a perineal retractor, and with the patient in the appropriate position, so opens the vulva as to admit air into the vagina, and thus expose to view the upper part of the canal with the cervix.

Semi-prone position. Not the least part of the success in the use of Sims's speculum depends upon get-

FIG. 8.

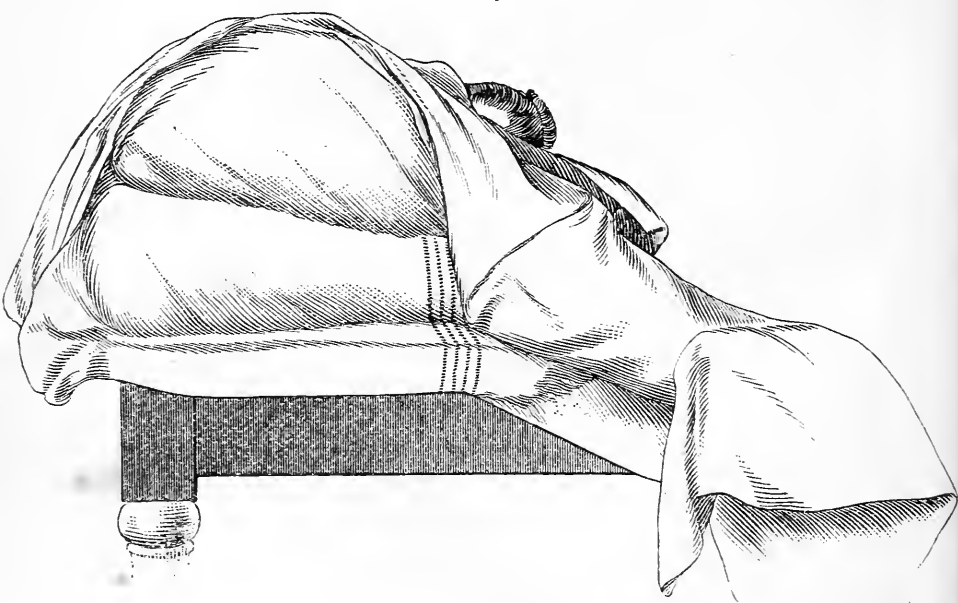


Semi-prone position.

ting the patient into the proper position. The really important points are: patient on the left side, hips at the lower left-hand corner, head and shoulders well over to the other side of the table, left arm thrown behind and hanging over the edge of the table, right shoulder carried over so as to bring the chest nearly flat upon the table, right hip rolled somewhat out of

the perpendicular, knees drawn up near the abdomen, right knee bent more than the left, and feet upon the foot-rest (Fig. 8). It is essential that the clothing should be loose about the waist. A single tight band will prevent the falling forward of the abdominal viscera and the distention of the vagina with air, which is what is sought to be accomplished with the use of the speculum.

FIG. 9.



'Arrangement of towels.

While the patient is being placed in Sims's position she should be covered with the sheet. When in good position the buttocks are to be covered with two towels, so arranged that one shall cover each side, their free edges meeting in the line of the cleft between the nates. Their lower ends are tucked between

the legs, the upper borders pinned to some article of clothing. The patient is thus completely covered, and by parting the towels slightly at the vulva the entrance to the vagina may be easily reached (Fig. 9).

Introduction of speculum. If all these points are faithfully insisted upon, and the patient is lying fairly

FIG. 10.



Introduction of speculum.

comfortable, as she should, the introduction of the speculum presents no difficulty. Certain precautions should be observed. If the introitus is small, the tip of the forefinger of the right hand should be inserted just within the hymen, and pressed lightly back against the anterior wall, thus shielding the meatus urinarius from being pressed upon by the beak of

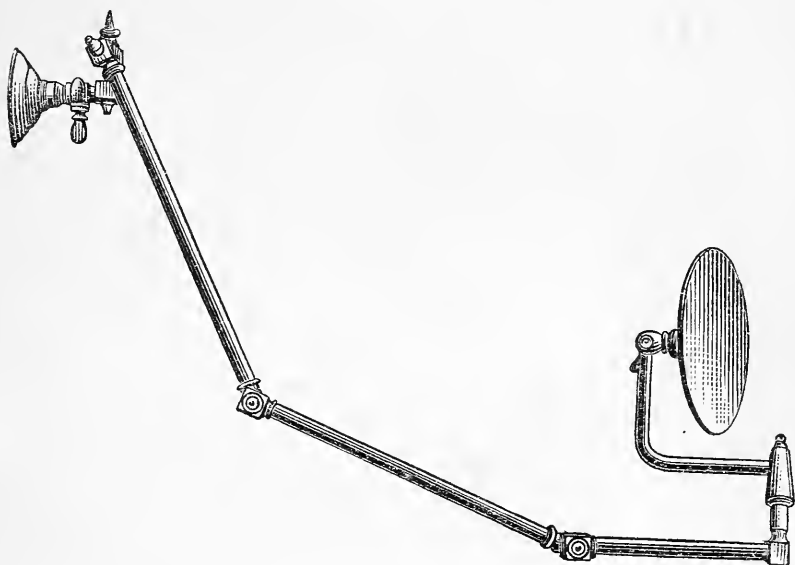
the speculum. The instrument, which has been previously warmed and oiled, should be taken hold of with the left hand, by the upper blade, the point inserted on the finger, and gradually pressed into the vagina with the thumb of the right hand, keeping it well back against the posterior vaginal wall (Fig. 10). The general direction of the blade is toward the hollow of the sacrum, and not in the axis of the body. When well in position, the speculum should be handed to the nurse, who grasps it firmly by the shank with the right hand, drawing the perineum well back and not pushing the speculum up into the vagina, while she holds up the buttock with the left.

Illumination. A north light is best, and daylight is usually sufficient, though in our climate the number of cloudy days makes it almost imperative to use at times some artificial light. A simple and very satisfactory illumination is obtained with a reflector, which is attached to a common fish-tail gas-burner, and the angle of which can be changed. It is furnished with a so-called "universal bracket," such as dentists use, and gives an exceedingly good light, which can be thrown in any direction (Fig. 11). The field of vision is usually illuminated by reflection of the polished surface of the speculum, and not by the direct light.

As the anterior vaginal wall is apt to come down into the field of vision and obscure the view of the cervix, it should be held back by a depressor, or, what will often answer just as well, a cotton stick. The operator, by grasping the upper blade of the specu-

lum, can so change the direction of the blade inside, as to bring any part of the vaginal vault he wishes into view.

FIG. II.



Bracket and reflector.

By the aid of the speculum we are able to see the condition of the various parts of the vagina, and the cervix, to note the existence and character of any vaginal or uterine discharge, to pass instruments, to determine the depth, direction, and calibre of the uterine canal, and to carry out almost all forms of treatment.

Advantages of Sims's speculum. The obvious advantages of the Sims's speculum are its ease of introduction, freedom from pain in its use, good view of the cervix and upper part of vagina in their natural position, and the large space it gives at the outlet,

where it is most needed for the manipulation of instruments.

As regards its ease of introduction, if it is remembered that it is really only a perineal retractor, and if in passing it in, the blade is made to hug the posterior vaginal wall, it will slip into place with amazing facility. The freedom from pain in its use especially recommends it in the case of unmarried women. Even where the hymen is present, it is usually found to be so distensible and yielding as to admit the forefinger without tearing. Where the finger can go, the smaller, so-called virginal, blade of the speculum can pass without causing undue pain, an advantage which no other speculum possesses. The third advantage is a very obvious one. A perfect view is obtained of every part of the vagina except the posterior wall, and this may be thoroughly looked over as the speculum is withdrawn. Other specula show only very small portions of the whole field, and those often so distorted that their true appearance and relations to surrounding parts are not apprehended.

The last advantage, that of giving room for the manipulation of instruments, is a very important one. Its value is recognized in the fact that operating must be done with this speculum or with one constructed on this principle. So, too, the proper and satisfactory use of instruments for diagnosis is none the less dependent upon plenty of space at the outlet. Whoever has had to pass a probe into an anteflexed uterus will have appreciated the importance of a large amount of room in which to manipulate.

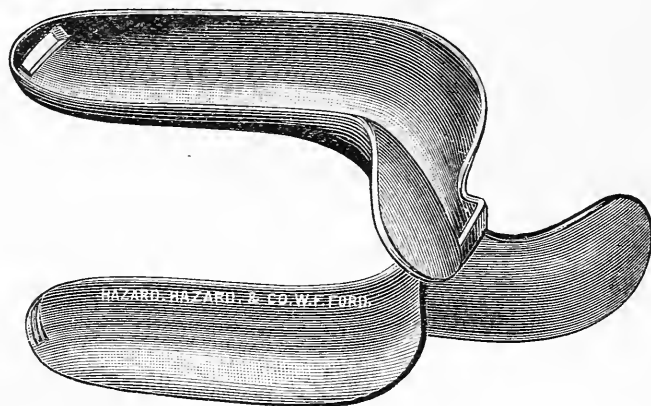
Disadvantages of Sims's speculum. The most weighty objection to Sims's speculum is the fact that it is usually necessary to have an assistant to hold it, in order to make a thoroughly satisfactory examination. This objection, of course, has no weight in the case of a specialist with a considerable office practice. Here the presence of an assistant is a direct advantage, both in the way of its being a comfort and aid to the patient, and also because it is a protection to the physician. The difficulty becomes apparent when an occasional examination has to be made. If the patient makes an appointment beforehand, or is seen at her own home, the presence of some third person can usually be secured who can render the necessary assistance. It is, however, surprising how much can be done with Sims's speculum when the physician has no assistant. The patient can be directed to hold up the right buttock with the right hand, and many of the simpler manipulations and forms of treatment can be carried out successfully. For the more difficult and nicer work an assistant is essential, and if one cannot be secured, some other form of speculum must be used.

Self-retaining specula. Recognizing the value of Sims's speculum, and appreciating this objection to its general use, there have been a large number of self-retaining specula, embodying this principle, devised by physicians. Most of them have proved of little practical value, either because of their complexity or high price, or because, being attached to the table, the slightest movement of the patient disarranges the whole apparatus.

Cleveland's speculum. Dr. C. Cleveland, of New York, has devised a self-retaining speculum which is not open to these objections. It is simple, cheap, and so attached to the patient that her movements are no more likely to throw the vaginal blade out of place than if the nurse held it.

To quote the author's description of it,¹ "It consists of two Sims's blades, each with a flange, and

FIG. 12.



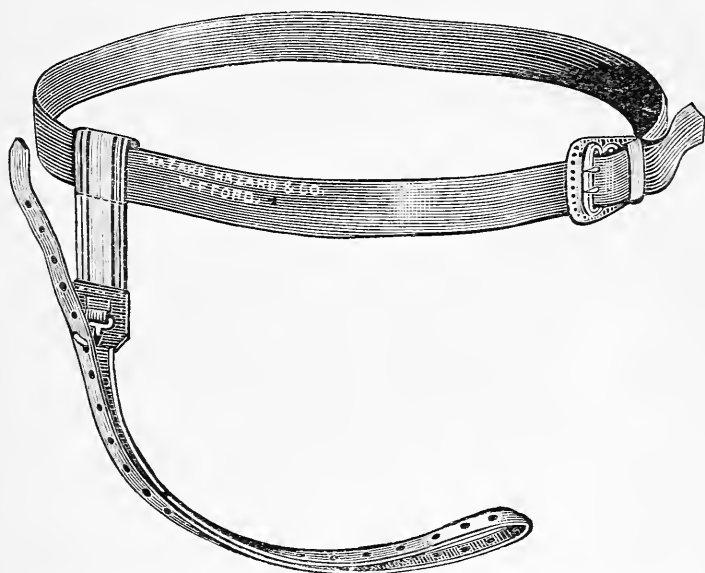
Cleveland's self-retaining speculum.

separated by an interval of one inch and three-fourths (Fig. 12). These, though in parallel planes looking at them from the side, will be seen to be at a slight angle to each other when held with the concavity of either toward the observer, the nearer blade deflected to the right, and the farther one to the left. At the point of each blade is a fenestra, and at the bend of the instrument, where the two blades come together, is a narrow metal band. To complete the instrument, there is a belt of webbed material, to be

¹ New York Medical Record, July 2, 1887.

applied about the waist. On this is looped, to admit of its being moved readily to any position upon the belt, a piece of the same material. To this is attached a long leather strap with oblong perforations placed at intervals of half an inch. At the point where this strap and the piece of belting are joined, there is a hook (Fig. 13).

FIG. 13.

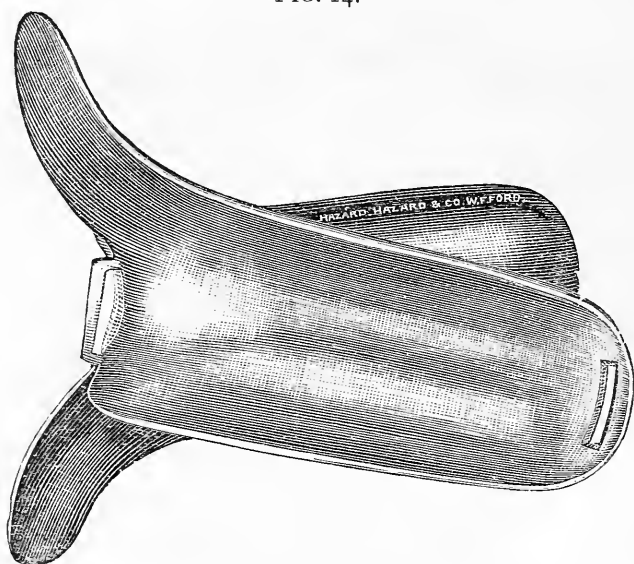


Belt and perineal strap for Cleveland's self-retaining speculum.

“To apply the instrument, the belt is first buckled by the patient, not tightly, about her waist, and outside her clothing, with the attached strap behind and the hook turned outward. She is then placed in the Sims's position. The operator selects the blade he thinks best suited to the case, and holding the instrument with the right hand, with the left he passes the leather strap through the fenestra at the point of the

other blade, and then under the metal band, leaving the strap quite loose between them. Then, holding the speculum still with the right hand, with the index finger extended along the concavity of the blade, it is introduced, care being taken to pass it back of the cervix. The instrument is then pushed firmly up against the perineum, the outer blade reaching a

FIG. 14.



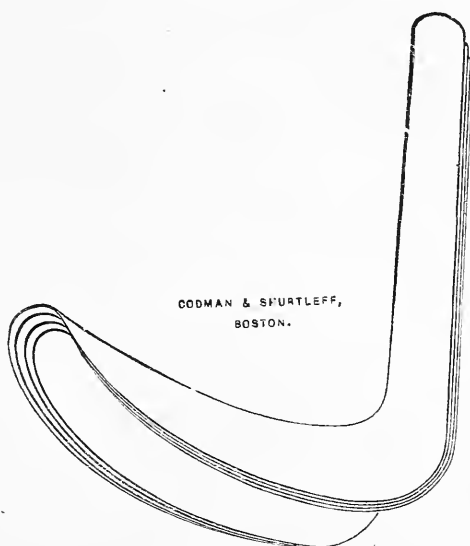
Cleveland's self-retaining speculum.

point just at the bend of the coccyx. In very thin women, it may be necessary to place a folded towel under the external blade. The next step is to draw the leather strap tight, first through the fenestra, and then under the metal band. The perineum is then retracted to the required degree by drawing the strap backward and securing it to the hook provided for the purpose. By now using the vaginal depressor, the cervix is brought at once into view."

The object of having the blades placed at an angle to each other is, that the blade in the vagina is tilted downward, thus accomplishing what the nurse does who draws backward and a little upward (Fig. 14). The advantages which the author claims for it are its simplicity, that it can be easily kept clean, and that it is cheap, not costing probably more than three dollars or three dollars and a half.

Bivalve speculum. The next best form of speculum, adapted more for simple treatment to the cervix or vagina than for diagnosis, is the bivalve. There are numerous varieties, and one should be chosen which expands at the base, thus giving room at the outlet, where it is needed.

FIG. 15.

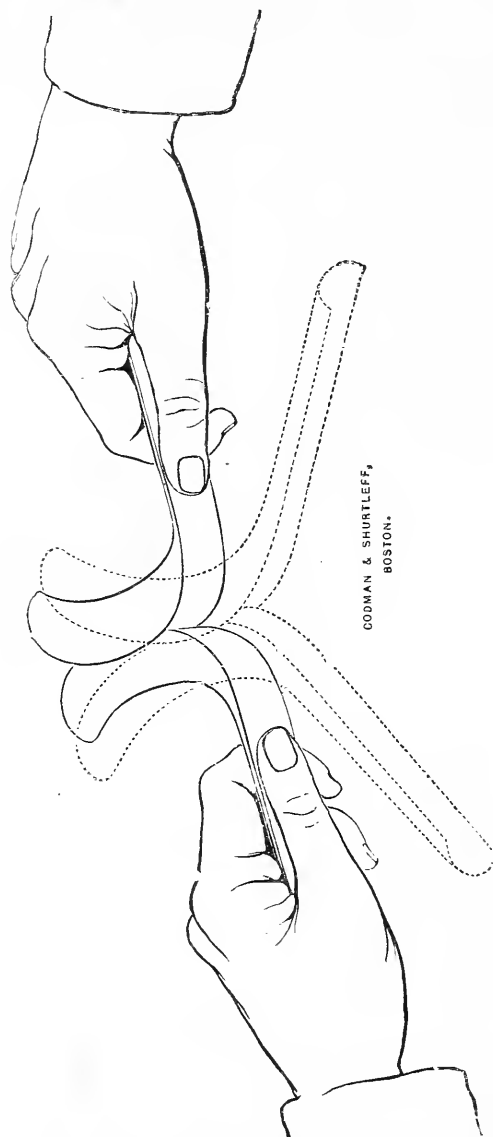
CODMAN & SHURTLEFF,
BOSTON.

Neugebauer's speculum.

Neugebauer's speculum. This speculum (Fig. 15) very fairly fulfils these conditions. It consists of two

blades sliding one within the other. The posterior blade is introduced, in a similar manner to Sims's, behind the cervix, and the second blade slid in on

FIG. 16

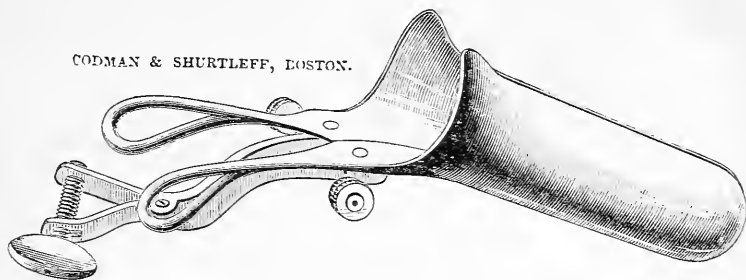


Neugebauer's speculum in position.

the first, the point passing into the anterior cul-de-sac. By approximating the external ends the opposite ones are made to diverge, and an excellent view of the cervix is obtained. It is also self-retaining, which is an advantage (Fig. 16).

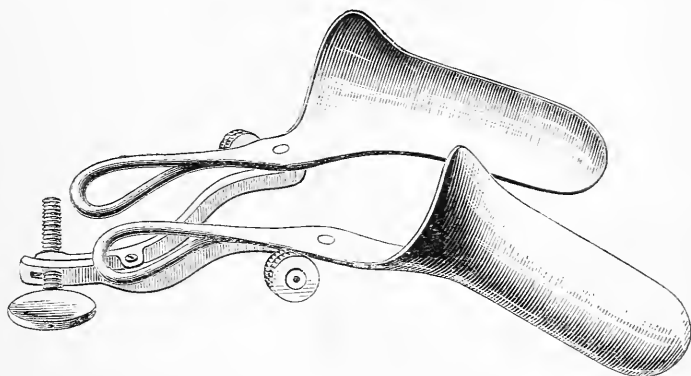
FIG. 17.

CODMAN & SHURTLEFF, BOSTON.



Goodell's bivalve speculum (shut).

FIG. 18.



Goodell's bivalve speculum (open).

Goodell's speculum. Dr. Goodell's (Figs. 17 and 18) is also a very satisfactory form of speculum, and the method of using it may be given in his own words:¹ "The bivalve speculum is preferably introduced with

¹ Goodell's Lessons in Gynecology, third edition, p. 28.

the woman in the dorsal position. The labia are separated by two fingers, which are passed just within the vulva. The bevelled tip of the speculum is then pressed downward on the edge of the perineum, and guided in through the interval between them, toward that portion of the vagina where the cervix has previously been found to lie. The handles being next turned toward the left thigh, the blades are then opened, and, as soon as the os comes into view, are fixed by the screw on each side. Should more space or working room be needed, the large screw at the end of the handles will still further open the blades."

The rules for the use of other instruments for diagnosis, as the probe or sound, will be fully given when we come to the consideration of the pathological conditions which necessitate their employment.

Examination per rectum or bladder. Besides the bimanual method, and that by means of the speculum, it is often necessary, in obscure cases, to use other methods. By means of the bladder and rectum it is possible to gain light on the relations of the pelvic viscera. In the case of a virgin with a tight hymen, the examination should, if possible, be made per rectum. It will necessarily be imperfect, but a backward displacement, and some other possible conditions, may be made out in this way. In cases of absence of the vagina, or atresia of the lower part of the canal, one or two fingers of one hand in the rectum, and a finger of the other hand passed into the bladder, after previous dilatation with graduated sounds, will map out what lies between in a satisfactory way. The urethra may be gradually dilated

to a size sufficient to admit the finger without producing anything more than temporary incontinence.

Simon's method. Simon's method of rectal examination, by introducing the whole hand, has very properly fallen almost completely into disuse. As I saw it practised in Heidelberg, it was more an exhibition of what could be done than of what it was wise to do, except in the rarest cases. The information to be gained by it was entirely out of proportion to the risk to the woman, and the only credit attaching to its advocacy by Simon was his demonstration that in desperate cases this almost brutal examination could be made without rupture of the rectum, or lasting impairment of the function of the sphincter ani. Its only really practical use was to determine the obscure relations of pelvic and abdominal tumors to the uterus and the ovaries; but since exploratory incision of the abdomen for diagnosis has been recognized as justifiable, it has tended to fall into disuse.

The ordinary methods of examining the abdomen from the outside, mensuration, percussion, and auscultation, are of so general application in all diseases of the abdomen, that they do not need mention here.

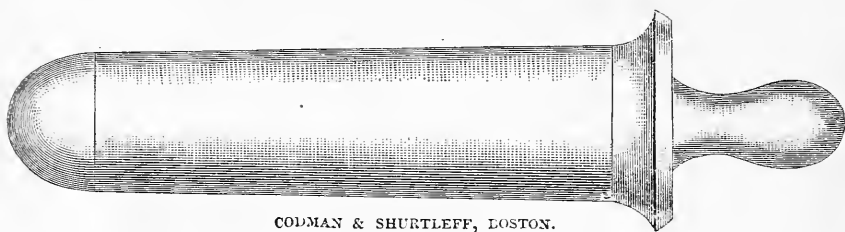
The examination in the genu-pectoral position, useful in replacing the retroverted or flexed uterus, and in carrying out certain treatment, will be described when treating of displacements.

Examination in the upright position. In cases of slight prolapse from relaxation of the uterine ligaments, the amount of such falling is often a difficult matter to decide from the examination in the dorsal position. In such cases the patient should be exam-

ined in the upright position. She should be directed to stand up and place the feet slightly apart, and the physician, kneeling on one knee in front of her, should pass the index finger of the left hand into the vagina and judge of the position of the uterus, both cervix and body. She should then be directed to strain down, so that any undue mobility may be noticed.

Examination of bladder. Diseases of the urinary tract, and of the rectum, are so common in connection with disorders of the genital organs proper, that

FIG. 19.



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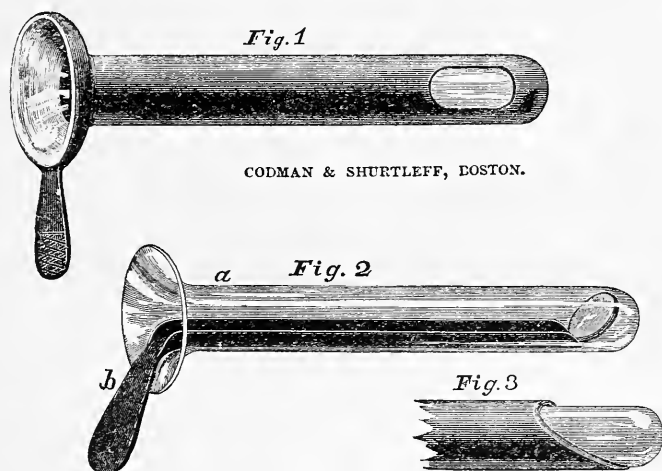
Simon's urethral dilator.

their consideration comes fairly within the scope of this work. Some simple directions for examining these organs may be given here. The base of the bladder may be palpated from the vagina. In this way the presence of a stone of any considerable size, or thickening due to a tumor, may be discovered. So, also, evidence of pain or sensitiveness may be elicited. The interior of the bladder is easily reached with the finger through the urethra. This canal may be stretched (preferably under ether) by graduated dilators (Fig. 19) until it will admit the finger, which can then thoroughly explore the lining membrane. A large-sized tube may be used as a speculum, light

being thrown in from a reflector, and the condition of the mucous membrane noted.

The best method of examining the urethra is with Skene's endoscope (Fig. 20). This is a small glass tube, in which runs a section of a cylinder, with a mirror attached at an angle. The tube is introduced, preferably under ether and after moderate dilatation, light is thrown in from a head mirror, and by moving

FIG. 20.



CODMAN & SHURTLEFF, BOSTON.

Skene's endoscope.

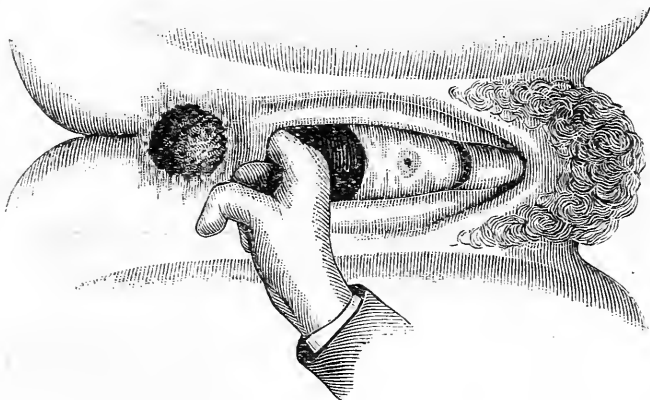
the tube mirror backward and forward, or rotating it, all parts of the urethra can be readily seen reflected in it.

Examination of the rectum. To examine the very lowest part of the rectum the best method is by everting it from the vagina. This has been fully described by Mundé in his *Minor Gynecology*.¹ He says: "A simple, rapid, and comparatively painless method of

¹ Mundé: *Minor Surgical Gynecology*, 2d ed., p. 62.

exposing to view the lower two or three inches of the rectal mucous membrane is to introduce one or two fingers into the vagina when the patient is on her side, and attempt to press the tips of these fingers out of the anus. In this manner the mucous membrane of a portion of the anterior wall of the rectum, and the edge of the sphincter become visible, and a fissure, ulcer, hemorrhoid, or a catarrhal hyperæmia of the mucosa are readily detected." (Fig. 21.)

FIG. 21.



Digital eversion of the rectum. (MUNDÉ.)

The thorough examination of the rectum can best be made with Sims's speculum. For this purpose the table should be brought near the window or reflector, so that the light will be thrown more directly downward. The patient should be placed in an exaggerated Sims's position by having a pillow placed under the left hip so as to raise it, and throw the patient more over on her stomach. The speculum (small blade) is then inserted into the anus, and drawn backward toward the coccyx. By this man-

œuvre air enters, and the whole lower portion of the canal may be easily seen, and any necessary treatment applied.

General considerations. There is a question which at some time confronts every physician in general practice, and often assumes a great deal of importance, and that is, In what cases is it advisable to make a physical examination, and in what cases is it wisest to refrain? No one would contend that all cases which complain of symptoms referable to the genital organs should be examined, but where to insist upon it, and where not to, is not so easy to decide. The doubtful cases are, of course, in the main, young unmarried women, and the deciding points should be the obscurity and severity of the symptoms. In the case of women who are or have been married, very little should be left to chance. If there is any reasonable ground to suppose that the patient's condition is due to, or aggravated by, something wrong in the pelvis, an examination should be strongly urged. A hundred superfluous examinations are better than one case neglected. How often does the dread on the part of the patient, and the delay on the part of the physician, result, in beginning malignant cases, in the favorable moment for operating being lost!

Examination of young girls. It is different with young girls. Here an examination should be avoided, if possible. The disorders which unmarried women under twenty are particularly liable to are, in the first place, menstrual disorders, then displacements, and third, inflammatory affections. As

regards the first class of cases, probably the majority need not be examined. General tonic and hygienic treatment will very often suffice to correct such troubles.

Displacements and inflammations call more often for a vaginal examination, and treatment to be effectual must usually combine local with general measures.

If the examination is unavoidable in a young girl, it should be made as delicately as possible. It is often better to administer ether, both for the sake of sparing the patient's feelings, as well as for the reason that with an intact hymen the mere entrance of the finger is very painful, and the examination cannot be thoroughly and satisfactorily made. Avoid rupturing the hymen, if that is possible. The examination by the rectum, though in general not satisfactory, may in a few cases give the information sought for, and be all that is necessary.

A patient should not, if it is possible to avoid it, be examined when she is unwell, and fortunately it is rarely necessary. Occasionally, when hemorrhage is a prominent and constant symptom, the cause must be sought for even though the patient is flowing. In such cases make the examination as brief and simple as possible.

CHAPTER III.

AMENORRHŒA.

IN a large proportion of the gynecological cases which the physician is likely to see in his daily practice, he will find some disorder of menstruation, either as the sole difficulty, or as complicating other troubles. Occurring, as it normally does, every month during thirty or thirty-five years of a woman's life, it has a very important bearing on her physical condition. It is, therefore, highly essential that the physician should be thoroughly conversant with the various irregularities which he so frequently meets with, and be able to treat them with skill.

Normal menstruation. It is essential, however, before proceeding to the consideration of the anomalies of menstruation, to understand it in its normal aspect. Menstruation is a periodical flow of blood from the genitals, beginning at puberty and lasting until the menopause, and occurring about every twenty-eight days. Its relation to ovulation does not concern us here, as we are merely considering it in its practical bearings. The flow may vary in duration and amount within the limits of health very markedly. The amount of blood lost, which is the important fact to be learned in most cases, cannot be absolutely determined. A fair estimate of the amount of the flow

may, however, be made in the following way: The ordinary method of protection during the catamenia used by women in civilized countries, is by means of napkins, folded and carried between the thighs, the ends fastened to a bandage around the waist. As they are ordinarily folded there are eight thicknesses where they come over the vulva. The amount of blood required, on an average, to soak a napkin folded in this way, so that the stain goes through the several thicknesses and appears on the outside, is a teaspoonful and a half, or a little more. The inquiry, therefore, should be made of the patient how many napkins she uses, and whether they are soaked through or not. This will give an approximate idea of the amount lost, which can be made more accurate by inspecting the whole number of napkins used during the sickness. This is more important with unintelligent patients, for there is a popular belief that frequent changing of the napkins favors the flow; hence, they are worn until they are drenched. To the amount of blood lost, as evidenced by the napkins, there must be added the clots which may be expelled, and be found either in the napkins, or in the chamber vessel, or in the water-closet. The size and frequency of these will often materially affect our estimate of the whole quantity. So, too, the length of time it lasts may vary greatly. Many healthy women menstruate but two or three days, while with others the flow keeps up a week or more. As a rule, the longer the duration of the flow, the greater the amount, but this is not invariable.

Perhaps it may be a fair statement to say that the

normal menstruation lasts four or five days, that the woman uses from six to ten napkins, of which half are soaked through in the sense spoken of above, the rest stained to a greater or less degree, and that it is accompanied by some discomfort or slight pain. Exceptions to this statement are very numerous. One woman normally uses from twenty to thirty napkins, and suffers if she does not flow steadily for six or eight days; while another barely uses one napkin, and would be decidedly weakened by what would be considered a normal menstruation. There must be a great difference in the blood-making capabilities of different women to account for this. Some pain or discomfort is with civilized women so universal an accompaniment of this process, that its occurrence may fairly be considered normal. It certainly is a fact that the cases among us where no pain is experienced are so rare that they are curiosities. There are exceptional cases of women who show the still greater eccentricity of feeling better at the menstrual epoch than at any other time.

The abnormalities which we have to consider in connection with menstruation are four: amenorrhœa or absence of menstruation, to which the use of the term should be restricted; scanty menstruation; menorrhagia or excessive menstruation; and dysmenorrhœa or painful menstruation.

Amenorrhœa. Amenorrhœa may be either congenital or, as Edis calls it, primitive—using such a term to denote that it has never appeared; or acquired—that is, after its appearance and duration for a time, it may cease.

CONGENITAL AMENORRHŒA.—Congenital amenorrhœa, as regards its causation, may be due, first, to a tardy development of the sexual life, so that the function appears either very late or not at all; secondly, to an atresia of the vagina, or an imperforate hymen, which does not allow the outward escape of the menstrual secretion. This should more properly be called concealed menstruation.

Symptoms. Cases of amenorrhœa of this class usually present themselves to the physician in this way: When a girl has passed the age at which the changes of puberty are expected, and her menstruation has failed to appear, it is very apt to occasion alarm. As it is popularly known that cessation of the menses is a common symptom of the advanced stage of phthisis, the converse is very easily deduced, viz., that the stoppage or non-appearance of the courses will lead to phthisis. Hence, the girl is brought to the physician with the history of absence of the menstrual flow, and with the request for something to bring it on. The first question to be asked is, whether there have been any menses or not. If such have been present, for a longer or shorter time; if there is, at other times, pain in the pelvis, and a feeling of weight on standing, an examination should be proposed and urged on the possibility of there being an imperforate hymen. A simple, ocular inspection will definitely settle this point; and any question as to atresia higher up in the canal may be solved by passing the handle of a cotton-stick into the vagina, as the parts are usually

too small to admit the finger without so stretching the hymen as to cause pain.

If, however, there have not been any symptoms which would suggest menstruation, such an examination is not necessary. It is, then, in all probability one of those cases of tardy development of the whole generative system.

Physical examination. The physical examination in these cases of imperfect development shows a more or less well-marked persistence of the infantile condition of the genital organs. The external genitals are small, the labia thin, the vulvar cleft, or the distance from the clitoris to the fourchette, is less than usual, and the vagina is short. The cervix is apt to be long, thin, and conical, often pointing in the axis of the vagina, and of a flabby consistency. The body is small, and the ovaries, if felt, are decidedly smaller than normal. The condition of the breasts can usually be ascertained under the pretext of examining the heart and lungs, and will sometimes be found to share in the non-development. Such patients are usually thin, anæmic, of a shy disposition, listless, poor eaters, or with a morbid appetite.

There is another class of cases of amenorrhœa where the trouble does not seem to be from lack of development, but for some reason or other the nervous stimulus which results usually in congestion and hemorrhage is not strong enough to complete the circle, but stops short of the menstrual flow. In such cases we have the usual discomfort which accompanies unrelieved congestion, a series of symp-

toms which will be described more in detail in speaking of acquired amenorrhœa.

Treatment. The treatment of amenorrhœa due to imperforate hymen is, of course, relief of the atresia by a surgical operation, the consideration of which does not fall within the scope of this work. The general principles on which the treatment of cases of amenorrhœa due to imperfect development or want of nervous force depends, are so similar for the two classes that they may properly be considered together.

These two classes of cases very rarely call for local treatment, and general measures are often not able to accomplish much. The point to be gained by treatment should be the strengthening and developing of the muscular and nervous systems, by food, exercise, out-of-door life, and mental rest. Such patients should be taken from school, denied all social excitement, required to take exercise in an agreeable form—for example, horseback riding, and calisthenics at home—and, as far as possible, should live a life of mental inactivity. More food, more blood, more muscle, more healthy nerve-force, and, as a result, normal activity of all the functions. As far as possible the patient should be sedulously kept from thinking of her own condition, and the ultimate object of all such hygienic treatment should be kept wholly in the background. Nothing can be more sure to defeat the end desired than for the patient to be continually expecting, month by month, the advent of the delayed menstrual flow. As helps toward a better state of general health, massage and electricity

may be mentioned, and, under some circumstances, a sea-voyage may be recommended.

Drugs. Drugs occupy a secondary place in the treatment of these cases, but should by no means be discarded. By far the most valuable remedy in the cases of tardy development is iron, and the tincture of the chloride is, according to my experience, the most efficacious. It should be given largely diluted, and during its administration special pains should be taken to keep the bowels open. Permanganate of potash has also a tonic action, but as it is usually less well borne than the iron, the latter is to be preferred.

Local treatment. Local treatment, however, may sometimes be called for in these cases. For example, if the patient has become engaged, and is contemplating matrimony, it would be a matter of great importance to bring the sexual system to a better state of development, and coincidentally establish the menstrual function.

The most appropriate treatment is usually some form of stimulation applied to the uterus and ovaries, and there are several methods which may be recommended.

Electricity. First in importance is electricity. This should be first tried from the outside. A mild Faradic current should be passed from the ovarian regions through to the back for ten minutes every other day for several weeks. If that fails to bring on the catamenia the current may be applied directly through the uterus, one pole being placed against the cervix, and the other on the abdomen over the

ovaries, varying from one side to the other. Or the application may be still more direct, by passing an electrode into the uterus itself. Only a very mild current can be used in this way.

Galvanic stem pessary. A very good way of getting the stimulating effect of electricity is by the use of the galvanic stem pessary. This is a stem composed of two metals, copper and zinc, arranged either as a series of beads alternately copper and zinc, or the elements are placed parallel, half the stem being of each metal (Fig. 22). There is a hard-rubber button at

FIG. 22.



Galvanic stem pessary.

the lower extremity, which comes in contact with the posterior vaginal wall, and, as a rule, the stem retains its position. There is probably some slight electrolytic effect from the use of the galvanic stem, for on its removal we find the zinc side covered with secretion, while the copper side is perfectly clean and bright. It is impossible to say, however, how much the good effect which I have seen follow in a few instances is to be attributed to the special galvanic property of the stem, or merely to the stimulus of the foreign body in the uterus. I am inclined to think the latter is the more prominent factor. Instead of wearing a stem pessary, the uterus may be stimulated by the frequent introduction of the uterine

sound. This may be passed every other day for some time, and as large an instrument as can be used without pain should be employed, in order to stimulate the nerves and bloodvessels as much as possible.

In the cases of amenorrhœa referred to above, where there is congestion, and Nature seems trying to establish the flow, but is unable, electricity in the form of galvanism may be employed with very good effect. Apostoli, of Paris, claims that to accomplish this result—viz., stimulating the menstrual flow—the negative pole should be in the uterus. The positive pole should be applied inside when the object is to check hemorrhage. The additional stimulus seems all that is needed to start the flow, and the circle once established, menstruation continues regular month after month.

Leeching. When this fails, and the congestion increases, a substitute for the natural flow should be sought for. This can be best attained by the application of a leech, which will usually produce a flow sufficient to soak three or four napkins, a loss of blood which is ample to relieve the distressing symptoms. The farther indications for, and the method of applying leeches, will be given later (see p. 104). Iron should be avoided in these cases, except possibly the combination of the sulphate with aloes, which is one of the best cathartics we can use. Nerve tonics like strychnia, arsenic, and manganese, are more often indicated.

ACQUIRED AMENORRHŒA.—Acquired amenorrhœa, or a cessation of the function after it has once become established, is very common. It not infrequently

happens that after the flow has occurred once in a young girl, there is a period of several months before it appears again. This in itself is of no consequence if the cessation occurs after only one or two regular periods; nor does it, as a rule, call for any treatment. Nature, if left to herself, will soon establish the flow on its proper basis.

As a result of general debility. It is a different matter, however, if such suppression come on later in the menstrual life. Then it may be a symptom of some disturbance either of the general condition or of uterus and ovaries, and as a rule needs treatment. Anything which depresses the vital powers, whether of a physical or mental nature, is liable to interfere with the proper functional activity of the various organs of the body, and the uterus is no exception to this rule. While one or another set of organs may show most markedly the loss of tone and perversion of function, yet as a rule all the members of the body sympathize and are affected in a greater or less degree.

Symptoms. The digestive system is liable to be the first to show any change, even before menstruation is affected; and loss of appetite, dyspepsia, flatulency, and constipation form a sequence of symptoms which we meet with every day, and which in turn give rise to, or are followed by, other disturbances none the less suggestive. Such patients begin to lose color, become easily tired, and are inclined to lie down at intervals during the day; lose breath, and suffer from palpitation of the heart on moderate exertion, especially on walking up hill or going up stairs; find

they do not get to sleep so easily, nor sleep as long as they used to, and are especially wakeful after any little excitement; become subject to headaches, complain of cold hands and feet, and are rapidly approaching a condition of invalidism. It is not long before symptoms referable to the sexual organs show themselves. Backache, pains down the thighs, increased leucorrhœa, and a feeling of heaviness in the pelvis are the common symptoms, with which is usually associated some disorder of menstruation. This may exceptionally show itself as menorrhagia, but scanty menstruation or its entire suppression is by far more common. It is a curious fact that many young women will pass through the whole category of functional disturbances here spoken of without much concern or alarm until the threatened or actual stoppage of the menses appears. This, however, has a profound significance to them. It is a well-known fact that in the advanced stage of phthisis the menstruation usually ceases, and the two facts being thus associated, it is no wonder that the sequence of events becomes distorted, and the amenorrhœa comes to be regarded as the cause of the phthisis. Therefore, we are not infrequently consulted by young women, whose principal complaint is that their courses have stopped, who at the same time, on questioning, will give a history of a progressive deterioration in the general health, extending over a period of months, and possibly years.

Graily Hewitt has, more than any other writer, emphasized the importance of general causes in the production of uterine disease. He considers that a

large proportion of the displacements of the uterus are due primarily to what he calls "chronic starvation," and that many menstrual disorders are no less dependent upon the same cause. The body being imperfectly nourished, there is a deficiency in the amount and quality of the blood made, and menstruation becomes scanty or ceases altogether. If this is so, it gives us a hint as to treatment.

General treatment. The menstrual disorder is not to be treated as such, but the condition of the whole system which lies back of it. In fact, I consider that in many such cases the patients are very much better off for not having their menstruation, and I deprecate any attempts to bring it on by direct means. Nature points out that the system can ill afford to lose even a small amount of blood every month, and any forcing of the function is directly injurious.

Treatment, therefore, should be directed toward improving the general health and nutrition of the patient by increased amount of food, moderate and regular exercise, and a quiet, healthful, systematic mode of life. In general, the principles laid down in speaking of amenorrhœa from want of development will apply here. Local treatment should be subordinated to general. It sometimes happens that there is in these cases considerable thin leucorrhœa, which in a certain way seems to take the place of the menstrual flow, and which may be irritating. If that is the case, hot vaginal douches may be of value. The method of giving these properly will be given later on (see p. 95).

A. associated with obesity. Amenorrhœa is sometimes associated with obesity. Young women who grow stout rapidly, find that their menses become scantier and scantier, and finally cease altogether. Such women, if they marry, are usually sterile, and treatment for the restoration of the function is not apt to be successful. I have been inclined to look upon the obesity in some of these cases as a result of the loss or temporary suspension of the functional activity of the ovaries. Analogies are suggested in the case of animals in which the ovaries have been removed, and which tend to take on fat, and the same thing has been observed as one of the sequelæ of the removal of the uterine appendages in women. The natural tendency of women to grow stout after the menopause points to a similar connection.

When stoutness and amenorrhœa occur in a young woman, the best plan for treatment is to reduce the flesh by some cure. This subject has been of late years very thoroughly studied, especially in Germany, and there are several distinct methods of treatment, based upon as many different theories, for the details of which the reader is referred to articles by Epstein and Oertel.

A. from change of climate. Amenorrhœa is not infrequently observed in this country in young women who have just come over from Europe or the provinces. The change of climate seems to be the only causal factor in these cases, as the patients are well nourished, and, as a rule, do not complain of other symptoms. After a varying period of from one to several months the sickness returns without

treatment. It is possible that in some of these cases, especially in girls from the country who go into service in the city, that the change of diet, restriction in the amount of exercise and outdoor occupations, may contribute their share in arresting the flow. In such cases it is well to prescribe iron, but I am in doubt whether the reappearance of the flow would not come about as quickly if left entirely to Nature.

A. due to pregnancy. One of the most common causes of amenorrhœa is pregnancy. The possibility of this being the cause of the stoppage of the menses should never be forgotten, whether the patient be married or unmarried. If the woman is married, there is, of course, no object in concealment on her part of her possible condition, and, as a rule, the non-appearance of the catamenia immediately suggests pregnancy to her, and she in turn communicates her suspicions to the physician. But if the woman has no right to be so, she will, if possible, try to blind her medical attendant by some such statement as that she got her feet wet, or caught cold when she was last unwell, that she had "once before gone four or five months without seeing anything, and had come round all right."

Considerable tact is necessary in dealing with such cases. Information of value may be obtained indirectly by shrewd questioning. Increased frequency of micturition, and some increase in the amount of leucorrhœa are usual symptoms of beginning pregnancy, and will be acknowledged without suspicion. The existence of the nausea of pregnancy can be ascertained by

inquiries as to the digestion, condition of the bowels, distress after eating, etc., gradually leading up to the actual occurrence of vomiting.

Hymen. Then follows the vaginal examination. The first thing to be noticed in introducing the finger is the condition of the hymen. If that is so far intact that the passage of the finger causes pain, the presumption is very strong against the patient being pregnant. Not absolute, however, as it is a well-known fact that conception may occur with intact hymen, the semen being merely deposited on the outside of the vulva.

Of course, the converse of the proposition does not hold true, that the absence of the hymen presupposes sexual intercourse. From my examination of young women for the first time, I am inclined to believe that the hymen is rarely so well developed or so tense as not to stretch easily at the first attempt at coition, much less to be an obstacle.

Vulva. Inspection of the vulva may afford us information of value. The bluish tinge of the vulva and introitus, while by no means constantly present in cases of pregnancy, is, if present, an important sign in favor of its occurrence. Chadwick has shown¹ that its absence is not to be accepted as evidence that pregnancy does not exist, especially in the first three months, when satisfactory evidence is most needed, but that from (and including) the second month this color is generally present, and often of such character as to be diagnostic.

¹ Transactions of the American Gynecological Society, 1886.

Uterus. Where pregnancy is suspected, the condition of the uterus is the next point to be examined. As regards the size of the organ, it is a difficult matter from that alone to say positively in the first two or three months whether it is enlarged or not. This is true if the patient is then seen for the first time, for there are other pathological conditions which will give rise to an increased size of the organ. But it is an easier matter to appreciate a slight change in size if the patient is one who has been under observation for some time, and whose uterus has been frequently examined bimanually. In such cases a slight change may often be readily detected.

The first alteration in size or shape is usually, as has been pointed out by Dr. W. H. Baker, a thickening of the uterus antero-posteriorly rather than an increase in length. This observation was made before the sign mentioned by Hegar was published, namely, a peculiar softening and elasticity of the lower uterine segment, most easily made out posteriorly, and I have considered that both these observations refer to the same change. The uterus in these cases lies a little lower in the pelvis, hence the backache, increased pressure on the bladder, and frequent micturition; and the more profuse leucorrhœa is undoubtedly due to the increased congestion.

The softening of the cervix is a later symptom, and in its beginning of less diagnostic value, as it may be produced in its lesser degrees by any condition of the uterus accompanied by congestion or hemorrhage. The same thing is true of the bluish tinge of the vagina and vulva. It comes on later, as a rule, and

is less pronounced in primiparæ than in multiparæ. It should, however, be always looked for.

Breasts. The condition of the breasts should last be examined, and there are subtle changes here which are among the earliest signs of pregnancy. Pain and some increased size are symptoms which the patient may be questioned about. The increased size of the areola, and the development of the papillæ of Montgomery, also occur early. There is one change which is found in a certain proportion of cases, which I am inclined to consider pathognomic, and that is, a certain puffiness about the nipple. The skin appears raised, is soft and velvety, and feels like a delicate membrane covering some elastic substance. Where I have observed this I have never failed to find the woman pregnant. The dilatation of the veins of the breast, which appear like blue lines under the skin, is another confirmatory circumstance.

I have been thus particular in describing the early symptoms of pregnancy because these cases are very apt to come under the notice of the general physician as well as the specialist, and a correct diagnosis is not only more difficult, but also more important, where there is an attempt to deceive on the part of the patient. When amenorrhœa is complained of, the possibility of pregnancy should never be forgotten, and the use of the probe or sound should be postponed until the question is cleared up. Sometimes a shrewd patient, who knows that absence of the menses is a suspicious circumstance, will conceal the fact. It is then that the recognition of these first signs of increased size and softening of the uterus will be of

value, and will prevent the passage of an instrument.

A. from superinvolution of the uterus. There is another cause of amenorrhœa occasionally met with, which is superinvolution of the uterus. Following confinement the uterus may atrophy, menstruation cease, and what is virtually the menopause be established at an early age. Treatment is of very little use in these cases. Nature seems to have exhausted the reproductive force of the woman with the one effort.

A. from mental emotion or cold. Acute amenorrhœa, as a result of cold, or fright or other mental emotion, is sometimes observed. It may affect only a single menstrual period, or it may persist for two or three months, rarely more. If such stoppage occurs in the course of the menstrual flow, the symptoms are apt to be severe. There is usually a chill, followed by considerable fever, headache and backache, and severe pain in the pelvis. The pelvic organs become engorged, there is bearing-down pain, frequent micturition, and pains in the thighs. The immediate treatment in these cases is to control the pain by sedatives, of which morphia is best, given in the form of suppositories, to relieve the congested uterus by the abstraction of blood by a leech, and to favor the determination of blood to the surface by mustard foot baths, warmth in bed, and diaphoretics.

If the menstruation fails to appear at the next month the treatment described in general for acquired amenorrhœa should be employed.

CHAPTER IV.

SCANTY MENSTRUATION.

SCANTY menstruation, which we are now to consider, is not perhaps so frequent an abnormality as some of the other functional disorders of menstruation, but in the cases in which it does occur, it is an important factor, and deserves close study. Carrier¹ has very happily proposed the name "oligomenorrhœa" for this condition, thus recognizing its claim for separate existence as a menstrual disorder, and bringing it into etymological harmony with the rest. It is necessarily a relative term, for with the varying amounts of the menstrual flow in healthy women, what would be scanty for one woman would be profuse for another. The question to be asked and decided is, "Is the flow in the case of this particular woman sufficient?" Various factors have to be taken into consideration in answering this question. In the first place, we should, by inquiry into the patient's menstrual history, find out what was the natural amount lost when she considered herself well. Then, have any changes occurred in her mode of life, any sicknesses supervened, or have marriage and child-bearing so modified her sexual activity that scantier menstruation would be naturally expected? In the

¹ Medical News, February 23, 1889.

next place, are the symptoms complained of such as would be naturally the result of a decrease in the amount of the flow, and which would be apt to be relieved by making it more profuse?

Symptoms. We are warranted in considering menstruation insufficient when there are symptoms of unrelieved congestion. Such symptoms may be confined to the pelvic organs, or they may in addition, or even exclusively, affect the circulation in other parts of the body. Among the first are a sense of weight and fulness in the pelvis, often described by patients as "bearing down," backache, pains in the thighs and legs, sensitiveness on pressure over abdomen, amounting to pain when such pressure is deep enough to impinge upon the uterus, frequency of micturition, and pain on defecation. Among the symptoms in more remote portions of the body are cold hands and feet, numbness of the extremities, and especially headache, or a feeling of tightness in the head, more prominent in front and on top. Instead of the sense of relief and freedom from discomfort which characterize the cessation of the normal flow, the menstruation in these cases ends, leaving this train of symptoms more or less pronounced.

Symptoms of delayed menstruation. As delayed is very often associated with scanty menstruation, there is apt to be a train of symptoms which precedes the appearance of the catamenia which is characteristic. Pain of a dull, heavy character in the lower abdomen comes on, and the sickness seems imminent, but does not appear; or if, after some more severe paroxysm of pain, there is a slight show, it ceases almost imme-

diately, to be followed by increased suffering. This feeling of turgescence and pressure in the pelvis, sometimes accompanied by nausea and vomiting, may last from a few hours to several days, in some cases followed by a sufficient flow, in others only partially relieved by a scanty discharge, to be succeeded by the symptoms enumerated above, which in turn wear slowly away.

Causes. When we consider the causes of scanty menstruation, we find that in part they are the same as those of amenorrhœa; in fact, the former is often but the initial stage of the latter. We therefore find it in young women whose general health has suffered from overwork, insufficient food, lack of exercise, and overtaxing of the brain; in stout, plethoric women who do not take sufficient exercise, and in women who have had some chronic inflammatory process in the neighborhood of the uterus. So, too, certain misplacements are liable to cause delayed and in some cases scanty menstruation, particularly retroflexion of a large, heavy uterus.

Physical examination. Physical examination in these cases shows a reddened, moist, and rather puffy vagina, a firm but elastic, somewhat swollen cervix, and a heavy uterus, sensitive to pressure. Examination of the ovarian regions often reveals the presence of abnormally sensitive ovaries, which may or may not be swollen and slightly displaced. The passage of the probe is usually accompanied by pain and followed by a drop or two of blood.

Treatment. As regards treatment, the obvious indication is, of course, to relieve the congestion. This

should be attempted in two ways: first, radically, by treatment of the cause, if that is possible; and second, symptomatically by temporarily unloading the blood-vessels at or near the period of greatest congestion. The two may be advantageously carried on together in the majority of cases.

The treatment of the cause must be based on general therapeutical principles, such as have been laid down in the chapter on Amenorrhœa. Every possible measure toward building up the general health of the patient must be adopted, and inasmuch as these cases are apt to become chronic, must be persisted in.

The immediate relief of the distressing symptoms directly due to congestion may be accomplished either by relieving the organs by depletion, or by driving the blood from them by applications. The latter method seems to me to be more applicable in the intermenstrual period, the former at the time of greatest congestion, whether just before or just after the flow. Given a case of scanty and delayed menstruation, the course to be pursued would be this: Within a day or two after the cessation of the menses, the patient should be instructed to take hot-water douches twice a day, the proper method of employing which will be explained farther on (see p. 95). Twice a week the vaginal cul-de-sac should be painted with Churchill's tinct. of iodine, and a glycerine dressing applied. A day or two before the sickness is expected, pills of aloes and myrrh should be given sufficient to induce free action of the bowels, and as soon as the first premonitory symptoms come on, the douches should be discontinued. If previous experi-

ence has led us to expect a delay of several days, an application of electricity made each day will often be of service. The most effectual treatment, however, is the application of a leech, for this directly imitates Nature's process, and supplements it where Nature fails to do her fair share. If this cannot be done, a certain amount of relief may be obtained by the constant use of glycerine dressings. These, if renewed every twelve hours, will keep up a watery discharge, and so deplete the uterus.

Emmenagogues are in my experience not reliable. The safe ones are practically inert, the more powerful ones too uncertain in their action. Sedatives such as hyoscyamus, belladonna, opium and valerian will often modify the distress, but do not increase the flow. Alcohol, especially in the form of gin, has a popular reputation for forcing the flow, but beyond benumbing the sensitiveness to pain, it probably has little effect.

We come now to the more detailed description of the different therapeutical measures mentioned above.

Hot-water douche. This method of treatment, the value of which was shown clinically by Emmet, has been proved experimentally to do all and even more than was originally claimed for it. Dr. Murray, of Edinburgh,¹ as a result of a long series of very accurate observations on the effects of water of different temperatures on unstriated muscular fibre, arrived among others at the following conclusion: that the prolonged use of water at a temperature of 100° or

¹ Edin. Med. Journ., Aug. and Sept. 1886.

above produces a tonic contraction of the bloodvessels, followed by a very slow relaxation.

To attain this result on the pelvic circulation three conditions are necessary: the water must be hot, it must be thoroughly brought in contact with the mucous membrane of the whole vagina, and the application must be a prolonged one.

The temperature of the water should be between 110° and 120° F. Any increase of temperature above 120° is of no benefit. When a thermometer is not at hand, the proper degree of heat may be arrived at by directing the patient to have the water as hot as she can comfortably bear the hand in it. The outside skin is more sensitive than the vaginal mucous membrane, and the water as it first flows out of the vagina over the perineum will often feel uncomfortable, but that will soon pass.

The position of the patient is of importance as regards the second condition. If a patient is merely told to take a vaginal injection, without having the method specified, she will usually take it stooping over a vessel, and, as will easily be seen, the water will run out by the side of the tube as fast as it runs or is pumped in. The injection only reaches as high as the end of the nozzle, and does not distend the vagina laterally. Such an injection may serve the purpose of cleanliness, but no other therapeutical end. To accomplish the result sought for, it is of the first importance that the hot water should be brought and kept in contact with the whole vagina, especially in its upper portion, for it is most often for its effect on the uterus and ovaries that it is recommended. The

patient should, therefore, assume such a position that the upper part of the vagina shall be at a lower level than the entrance, which can be accomplished by placing her on the back with the hips raised higher than the shoulders. Water should then be allowed to flow into the vagina till it is full, and it should be kept full until the whole amount has been used.

Such amount should not be less than five or six quarts, and that quantity should be allowed to run at such a rate that it will take from fifteen to twenty minutes for the whole of it to flow.

To accomplish all these ends, some apparatus, simple or otherwise, is necessary. Almost any syringe can be used, though some have decided advantages over others. The Davidson or other bulb syringe is objectionable, because, if the patient, as is usually the case, has to give herself the injection, it is very tiresome to pump for so long a time, and because the force of the stream cannot be so accurately regulated.

The fountain syringe principle is the correct one, or the siphon, which also gives an uninterrupted flow; but until very recently the rubber bags have not been made of sufficient size, the largest holding only two quarts. They are now made to hold four quarts; but as the still larger quantity of six quarts is often necessary, some other arrangement is preferable. A tin receptacle, a pail which will hold six quarts, with a small opening, near the bottom, to which a rubber tube can be attached, will answer every purpose. The rubber tube should be six or eight feet long, furnished with a clamp to shut off the flow when necessary, and ending with a long vaginal nozzle.

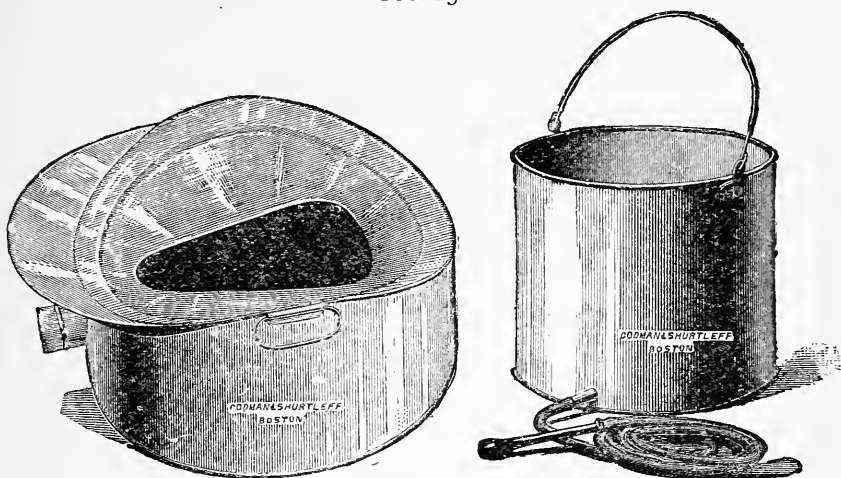
This nozzle is preferably of hard rubber, as both glass and metal convey heat too readily and are uncomfortable, and glass is liable to break.

The arrangement of the holes at the end is important. Formerly there was a central hole, and three others at the sides. Occasional attacks of uterine colic following the douche were observed, and they were attributed to the entrance of a small quantity of water into the cavity of the uterus from the direct stream through the central hole. Whatever was the cause, since they have been manufactured without such central hole these occurrences have practically ceased. The attention of the manufacturers was called to the fact, and nozzles are at présent made with only the three side openings.

The next contrivance to be arranged is something to catch the water. If the patient is to lie on her back with her hips raised, she should be made comfortable, and the surplus water should flow into some receptacle. The bath-tub may be utilized, or the water may be led off from the edge of the bed or sofa into a pail, the sides being protected with rubber cloth or oiled silk. The best arrangement, however, is some specially devised plan which will support the hips comfortably, and hold the requisite amount of water. There are several complete apparatuses in the market, some of which are faulty in one or another respect. A thoroughly good one, and one which fulfils all the requirements of a douche apparatus is that devised by Dr. W. H. Baker (Fig. 23). With it the patient can lie comfortably in the correct position for the fifteen or twenty minutes required to

use the six quarts which the pail holds. The whole apparatus can be bought for three dollars.

FIG. 23.

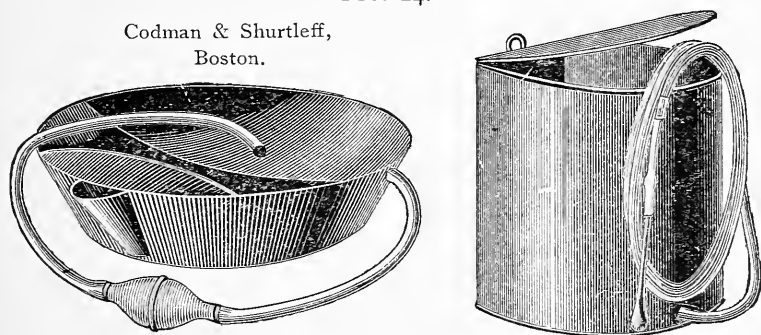


Baker's douche apparatus.

In some respects the Reynolds douche-pan and pail are preferable (Fig. 24). The pan is lower, hence

FIG. 24.

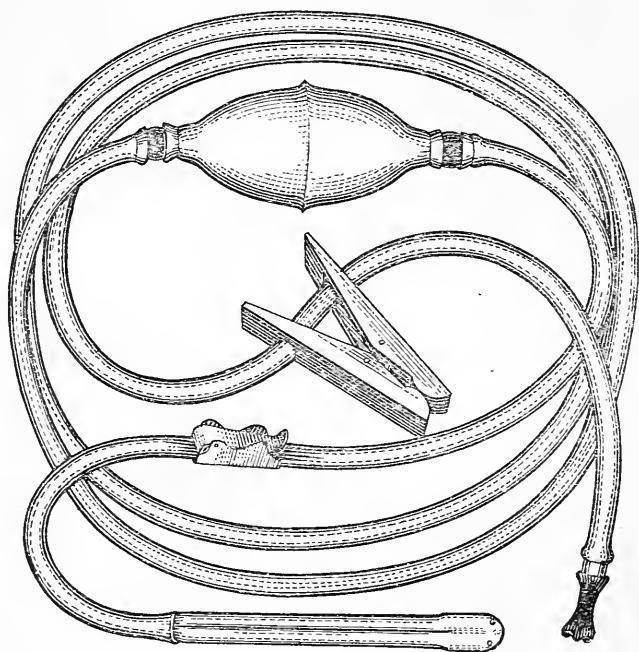
Codman & Shurtleff,
Boston.



easier for the patient to lie on. It also has the merit of emptying itself by means of the siphon arrangement, thus doing away with the necessity of lifting the pan filled with water.

There is a cheaper syringe which I have been in the habit of recommending to dispensary patients, which acts on the siphon principle (Fig. 25). A long tube with a bulb near one end is run through a snap clothes-pin. This is caught on the side of a pail, the free end of the tube reaching nearly to the bottom. The tube being clamped, a few compressions of the bulb expel the air, which is replaced by a column

FIG. 25.



Siphon syringe.

of water, and then, when the clamp is released, a continuous stream of water flows through the nozzle. No pan comes with this, so some plan for catching the return water must be improvised. It can be bought for a dollar and a quarter.

The pail should be placed at an elevation of only a foot or two above the level of the bed or couch on which the patient is lying, so that the water may flow very gently. The water in the tube which has become cold should be allowed to flow into the pan before the nozzle is inserted into the vagina, and the patient should be well covered over. If there is time, she should lie quietly for a short while after taking the morning douche.

The best time to take the douche if used but once a day is at night, for the uterus is most congested then, and needs the hot water most. It is also a better time because the temporary weak feeling which sometimes follows the douche has disappeared before morning. As a rule, it should be taken twice a day, for the effect passes off certainly within twelve hours. It should be suspended at the appearance of the menstruation, and only resumed when the flow is entirely over. Sometimes the pressure of the water against a sensitive uterus causes such severe pain that the injections have to be abandoned.

Applications. The second procedure recommended for relieving the congestion during the intermenstrual period is applications of iodine to the vaginal cul-de-sac. This is applicable when the scanty flow has failed to relieve the congestion, and the resulting train of symptoms has followed. The method to be employed is as follows: With the patient in the semi-prone position, Sims's speculum is introduced, and the anterior wall held back with a depressor or cotton-stick. A cotton-stick is then armed with a small wad of cotton wound tightly about its end, and the

point of this is dipped in Churchill's tincture of iodine. This is then applied thoroughly to the whole cervix and vaginal cul-de-sacs. A small glycerine dressing is then placed in the vagina, and the speculum withdrawn. The dressing should be allowed to remain for twelve hours or more, and then be removed, and the hot douche resumed. This should be done as often as every fourth or fifth day, sometimes as often as every other day. The formula of Churchill's tincture of iodine is—

| | |
|------------------------|---------|
| R.—Iodine | gr. 75. |
| Potass. iodid. | gr. 90. |
| Alcohol | ℥j.—M. |

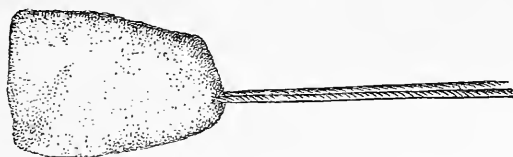
This, as will be seen, is much stronger than the compound tincture. It should be put in a large-mouthed bottle, with a glass stopper.

The glycerine dressings, referred to above, are made in the following way: A good quality of cotton, preferably not absorbent, is separated into strips about four inches long and an inch and a half wide. These are folded over once, and a loop of string fastened to the middle. They are then soaked in water, wrung out as dry as possible, and are then wrung out for a second time in glycerine. A very little carbolic acid may be added to keep them from mildewing. They are then ready for use, and may be kept indefinitely (Fig. 26). Should they become too dry, a little glycerine may be added from time to time.

A very convenient form of cotton to use for this and other purposes is, as it comes in a long narrow strip from the carding-machine at the mill, the so-called "sliver." This has not heretofore been for

sale, but I have been able to procure it by the pound through the courtesy of officers of one of our large mills. It may, however, now be obtained from T. Metcalf & Co., of Boston, who keep it in stock, and are prepared to supply it to physicians.

FIG. 26.



Glycerine dressing.

Glycerine tampon. An effectual method of depleting the uterus is by means of the glycerine tampon. A wad of cotton or preferably prepared wool, large enough to comfortably fill the vagina, should be soaked in glycerine and placed against the cervix. This may be allowed to remain three or four days, when it should be renewed and the process kept up during the whole inter-menstrual period. It will cause a profuse watery discharge, for which the patient should be directed to wear a napkin, and the tampon should be removed at the first sign of the approaching sickness. This method will often accomplish more in relieving the congestion than the continued use of the hot-water douche.

Electricity. The value of electricity in stimulating the uterus and increasing the menstrual flow is undoubted. It is most efficacious in the class of cases we have been considering, if applied just before and at the time the menstruation is expected. The methods are the same as were spoken of in connection with

amenorrhœa, except that I should be disinclined to use the galvanic stem pessary in cases of delayed menstruation with a congested uterus.

Leeches. The use of leeches to relieve congestion of the uterus and ovaries, though recommended generally in text-books, especially the older ones, has of late years not been accorded its true place as a means of treatment. This probably arises partly from the fact that the methods hitherto recommended have been tedious or uncertain, and also because there is a general impression that blood may be abstracted in other and easier ways with equally good result.

The methods of employing a leech generally in use have been two. The most common way has been to engage the cervix in the lumen of a cylindrical speculum, plug the os with a pledget of cotton to prevent the leech making his way into the cavity, and then turning one or more leeches into the speculum. The free end is kept plugged, and after a certain length of time the engorged leeches, clots, and blood are turned out. The other method is to expose the cervix with Sims's speculum, and then apply the leech directly to any part of the cervix by means of a long leech-glass.

The first way is exceedingly uncertain and faulty. It is a method which almost necessitates the use of the cylindrical speculum in preference to Sims's. The latter acting as a perineal retractor, enables the operator to reach the cervix easily, and control such minor operations with the hand and eye. Leeches are so uncertain that, unless watched, there can be no way of knowing whether they have bitten or not, and if only one has been used, there may be no re-

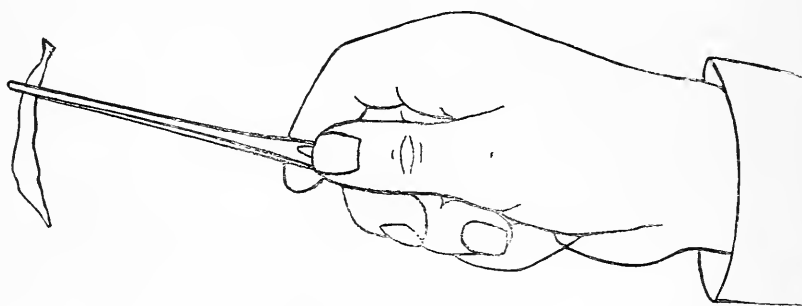
sult, or if more, only half the effect wished for. Besides the amount the leech abstracts there may be a much larger quantity lost from the leech-bite, and to leave it a matter of uncertainty whether one or three or six take hold is certainly not good practice. The physician should have a definite idea how much blood it is advisable for the patient to lose in this way, and should be able to control it by limiting the number of leeches, and by regulating the amount of the after-flow, both of which are out of the question with this method.

The use of a long leech-glass is objectionable on account of the amount of time which is often consumed before the leech will take hold. Anyone who has attempted to make a sluggish leech crawl to the end of the tube, and when there, stay there, and take hold, will certainly appreciate any method which saves time. It is exceedingly fatiguing to a delicate patient to lie in Sims's position for half an hour, or, as has occasionally been found necessary, for an hour or more, while the physician vainly tries to induce the leech to bite. Even scarifying the mucous membrane to induce it to take hold will often fail.

For several years I have used a method by which there is a great saving of time and fatigue both to physician and patient. With the patient on the side and Sims's speculum in position, the cervix is well brought into view. The leech is then grasped with the uterine forceps about half an inch back from the head as it is extended (Fig. 27), and held against the cervix. As a rule it takes hold almost immediately, but if not, bringing the leech outside, and taking a

fresh hold, will after one or two trials be crowned with success. At first thought, it would seem as if the pressure of the forceps might so injure the leech that it would not draw as well, but I have found that even claspng the forceps on the neck of the leech is followed by no bad results. Usually it is necessary only to hold the animal firmly, gradually letting up the pressure as he takes hold, but as a strong one will often squirm away from the forceps, it is sometimes necessary to clasp them.

Fig. 27.



Leech held by forceps.

If the process is watched, it will be seen that the head flattens out as the leech inserts its three hooklets preparatory to beginning suction, and as that is seen, the pressure of the forceps may be diminished. If the leech does not show a readiness to do this, a fresh hold had better be taken rather than persevere with the old one.

It seems as if the discomfort from the pressure of the forceps is a stimulus which induces the leech to bite, and teasing it a little before introduction so as to make it lively is of help as well. Leeches vary,

and of course one will be found now and then which will not take hold. Occasionally, scarifying and drawing a drop of blood will prevail upon a reluctant leech to bite.

The leech being under perfect control in the grasp of the forceps, it is not necessary to plug the os uteri to prevent its crawling in. If it should happen, the best plan is to wait patiently, and within half an hour at least the leech will appear again. The leech should be made to bite on the crown of the cervix, not too near the os, nor too far over the side. The amount of blood lost depends upon two factors, the capacity of the leech and the subsequent behavior of the bite. Leeches vary in size, and will draw from two to four drachms before dropping off. How much subsequently flows will probably depend upon the vascular distribution of the part where the bite is. If there is much engorgement, or if the leech happens to wound a superficial vein, the subsequent flowing may be so great as to occasion alarm. As a rule, if the patient keeps quiet the amount of blood lost will be sufficient to soak from two to four napkins. This with the amount abstracted by the leech itself is usually sufficient to relieve the congestion which is the accompaniment of the scanty menstruation. If the engorgement is very marked and the person plethoric with very scanty menstruation, two or even three leeches may be used with good effect.

If possible, this minor operation should be done at the patient's home. If it is necessary to do it at the office, certain precautions should be observed. The patient should be requested to remain for a time, in

order to see how the flowing is progressing. If the napkins are rapidly soaked, and especially if clots form, it should be stopped before the patient is allowed to leave. This can best be done by applying to the bleeding-point a small bit of styptic cotton. Should this fail, a superficial suture will easily control the flow.

If there is only a moderate flow, the patient may be allowed to go, but should be provided with a cotton dressing covered with powdered alum or tannic acid, which she can pass well into the vagina in case severe flowing should come on before she gets home. This is a very important precaution, if her home lies at a distance. If hemorrhage should occur after she is at home, hot-water injections should be taken, from four to six quarts at 120°, or a quart of warm water with a tablespoonful of alum dissolved in it. Should that fail to control the hemorrhage, a physician should be sent for. I am thus particular in describing what to do in a case of hemorrhage, because it is not a very rare occurrence following a leech-bite, and the insignificance of the wound hardly prepares one for so serious a sequel.

In these cases of scanty menstruation with resulting congestion, the best time to apply the leech is just before the expected sickness. If, as is usually the case, there are pains and distress preceding the establishment of the flow, that should be our guide, delaying it as long as is safe, so as to bring the artificial flowing as near the time of the natural process as possible. I should not hesitate to apply the leech even after the menstruation had started,

provided the flow was scanty. If the opportunity before the sickness be lost, it may be applied after it has ceased, but the relief is not so great. In the case of young girls, where the necessity for depletion arises, the leeches to the number of two or three may be applied about the anus; or, as is sometimes the case, if the congestion is principally of the head, causing severe headache, to the temples.

Puncturing and scarifying. The question may naturally be asked whether the abstraction of blood in some other way, as by puncturing or scarifying, will not answer the same purpose? I have tried both methods on the same patient, and have had distinctly better results with the leech, both as regards the relief of local pain and more remote symptoms, such as headache and backache. The suction of the leech, slow and steady, seems more nearly to imitate Nature's process in its results than either puncturing or scarifying. Puncturing is in itself at times a painful procedure, and often causes lameness and soreness of the uterus afterward, and it is difficult, without numerous and deep punctures to cause enough blood to flow to give relief. Scarifying is

FIG. 28.



COLMAN & SHURTLEFF, BOSTON.

Uterine bistoury.

also unsatisfactory as regards the amount of blood removed. These methods may, however, be employed when it is impossible to procure a leech, but

in that case it would be well to repeat the puncturing two or three times during the days immediately preceding the flow. Either operation is best done with a sharp-pointed uterine bistoury (Fig. 28), and the puncturing should be done on the face of the cervix, while the scarifying will be more effectual on the mucous membrane lining the cervical canal.

CHAPTER V.

MENORRHAGIA.

WE come now to the consideration of the third abnormality of menstruation—viz., menorrhagia, or profuse menstruation. This is a much more common cause of complaint than either of the conditions which have been discussed, partly because it actually does occur more frequently, and partly because it is more alarming to the patient than either amenorrhœa or scanty menstruation, and hence she is more ready to seek relief. Like scanty menstruation, its significance is relative, as many women normally menstruate enough to soak twenty to thirty napkins, besides losing large clots—an amount of blood which would exsanguinate another woman, or at least keep her in a permanent condition of invalidism. Like the other abnormalities, this is, in the vast majority of cases, a symptom of some trouble either general or local, though we occasionally meet with cases where the most careful investigation fails to show any cause for the menorrhagia. Such cases must be considered idiopathic.

The first question which is to be answered in the given case is: Does this woman flow more than she ought? What are the indications from which we may conclude that the flow in any particular case is

excessive? A certain amount of lassitude and weakness is not uncommon with most women, but if such feelings persist through several days, and no other cause can be found for them, the attempt should be made to modify the flow, in order to see if that is not the main factor. When the amount of blood lost is clearly sufficient to keep the woman in a weakened condition, and is a drain upon her system from which she does not fully recover in the inter-menstrual period, it should be considered pathological.

Causes. The causes of menorrhagia may be broadly divided into general, or those arising from some condition of the system outside of the pelvic organs, and local—that is, due to some pathological change in the pelvic organs themselves. These latter are by far the most common.

General causes. Among the more frequent general causes of excessive menstruation may be mentioned debility, incipient phthisis, heart disease, and temporarily, acute infectious diseases. The influence of a debilitated state of the whole system upon the menstrual function more often expresses itself, as has been pointed out above, in scanty menstruation or amenorrhœa, but occasionally the reverse takes place. These cases are usually young girls who, at the age of puberty and for a few years subsequently, have grown rapidly, pursued a too laborious course of study, and taken too little exercise. Frequent examples of this are to be found in our schools, where the competition is so great that proper attention is not paid to rest at the time of menstruation, and the strain upon the nervous system is kept up continuously.

In addition, there is not infrequently to be added as a factor, the excitement due to the claims of society.

In the later stages of phthisis the menstrual flow is apt to cease, but some recent investigations by Dr. Handford¹ seem to show that in incipient phthisis there is more apt to be menorrhagia, and that the children of phthisical parents tend to menstruate unduly early and excessively; a view which finds confirmation in Graily Hewitt's opinion, that "young women in whom there are signs of a tendency to, or an actual development of, tubercle, are very frequently the subjects of profuse menstruation." This possible connection should be borne in mind when consulted in a case of profuse flowing in a young girl.

Heart disease is occasionally a cause of menorrhagia, and that organ should not be overlooked as a possible explanation in an obscure case.

Local causes. The conditions of the pelvic organs in which excessive menstruation occurs as a symptom, are so many that to enumerate them all would cover pretty much the whole domain of gynecology. It may be safely stated that most of the diseases of the uterus, ovaries, and tubes, or pelvic connective tissue, may at some time in their course, or in some instances, be accompanied by menorrhagia. The important point to be decided always is, what is the cause, inasmuch as our treatment will be radically different as one or another source is found. As a rule, no specially active treatment is called for

¹ British Medical Journal, Jan. 22, 1887.

during the flow, unless the hemorrhage becomes so alarming that it must be checked. The cause having been found, the inter-menstrual period should be chosen in which to carry out the appropriate treatment for the given case.

Where the trouble is with the pelvic organs themselves, we usually find the uterus in a state of abnormal congestion, either temporary, restricted to the few days preceding and following the flow, or, as is usually the case, persisting through the whole inter-menstrual period. Such congestion may be either active—that is, its cause may be some condition, usually in the uterus itself, by which an undue amount of blood is attracted to the organ, or it may be due to some pathological change, either in or outside the organ, on account of which the return of the venous blood is prevented, and we have a resulting passive congestion. This distinction is very important as regards treatment, for it will be radically different according as one or the other cause predominates.

The congestion, as a rule, first expresses itself in an increase in the amount of blood lost during menstruation, either the flow becoming more profuse or the discharge lasting longer, or both. Later there is very apt to be hemorrhage between the regular periods, so-called metrorrhagia, which we will consider in another place, though much of what is said here as regards the treatment of menorrhagia will apply equally well to metrorrhagia.

It is not my purpose here to go into a differential diagnosis of the various causes of menorrhagia, but merely to point out in a general way the different

classes of causes, with especial reference to the several kinds of treatment applicable. Many of them admit of relief only by surgical interference, and will not be further considered. Others will be spoken of more in detail in later chapters.

Active congestion. The first class of causes to be mentioned is those growths inside the uterus which, by their presence, attract an increased amount of blood to the organ. The most common of these are fibroids and polypi, then retained products of conception, and lastly, malignant new-growths. These, as a rule, cause active congestion, and the treatment for their relief is mainly intra-uterine and for the most part surgical.

Active and passive congestion. There then follows a class of causes in which both active and passive congestion play a part. The very common condition of hyperplastic endometritis, so-called granular degeneration of the uterine mucous membrane, is an example of this class. Here the first factor is often some chronic inflammatory condition of the whole organ, from subinvolution or displacement, or pelvic cellulitis, which later leads to degenerative changes in the endometrium, which in turn become a cause of active congestion, and keep up the increased flow. So, too, a submucous fibroid, which at first may directly influence a flow of blood to the uterus, may later, from its weight and pressure, dislocate the uterus, and thus interfere with the free return of the venous blood.

Passive congestion. A third series of causes directly occasions passive congestion. Such are displace-

ments of the uterus, later stages of chronic metritis, when tissue-changes have begun, inflammatory thickening in the pelvic cellular tissue, and tumors of broad ligaments, tubes, or ovaries.

Treatment. The treatment of ménorrhagia may be divided into internal, by means of medicines, and local. Inasmuch as it is manifestly impossible to give much local treatment at the time of menstruation, internal remedies are usually called for during the flow. Occasionally, it is true, the hemorrhage is so alarming that something must be done at the time. That, however, is usually restricted to measures to check the flow, irrespective of the cause, the treatment for the particular condition which causes the menorrhagia being reserved for the inter-menstrual period. The use of medicines is much the less satisfactory, as a rule, but there are cases where it is wise to abstain from local treatment altogether. In young girls who suffer from profuse menstruation, usually as a result of general debility, it is often unnecessary to make any examination, at least it should be deferred until the effect of general treatment has been tried, or until new and unexplained symptoms necessitate more radical measures. As a rule, the general tonic and hygienic treatment laid down for the condition of amenorrhœa which is often the result of such debility, will suffice to modify the flow. If, in spite of it, the menorrhagia persists, the examination should not be postponed. In the case of young girls, it is often wise to give ether for the first examination, as in this way better relaxation is secured, and the patient's feelings of delicacy are respected.

Drugs. The drugs on which we mainly rely in our treatment of menorrhagia are ergot, hamamelis, gallic or tannic acid, the dilute mineral acids, hydrastis Canadensis, preparations of iron, and iodine. Though treatment by internal medication is less reliable than by local measures, and in the majority of cases little or no effect is produced by drugs, yet if the indications for their employment are carefully studied they will now and then be of service.

Ergot. As a rule, I have found ergot of very little value in menorrhagia, and not infrequently its use has been followed by intense pain, undoubtedly due to its stimulating the uterine muscles to contract. The one exception to this statement is in cases of fibroids during the time when they are advancing toward the interior, that is, changing from the interstitial to the submucous variety. When the tumor has once got within the cavity, and has become pedunculated, the ergot seems to lose its effect. It has also proven of use in cases of subinvolution. But when the trouble is seated in the mucous membrane, as in cases of hyperplastic endometritis, there is little benefit to be expected from its use. Of the preparations, I prefer a reliable fluid extract. If, as is sometimes the case, its prolonged use is followed by gastric symptoms, pills of ergotine may be substituted. The hypodermatic use of the drug is a last resort in cases of a large tumor where an operation is not advisable.

Hamamelis. Hamamelis or witch-hazel has been highly praised by some writers for its efficacy in checking profuse menstruation. It has been used alone, in doses of fifteen to twenty drops of the fluid

extract, or mixed with equal parts of ergot. In neither way has it seemed to have any special effect.

Gallic acid. Gallic or tannic acid, particularly the former, in doses of five to ten grains in a wafer or capsule every three or four hours have yielded good results. The cases in which they are especially useful are those where there is a great deal of passive congestion from some misplacement, or inflammatory condition about the uterus.

The dilute mineral acids, particularly sulphuric, may also be tried where other measures fail.

Hydrastis. Hydrastis Canadensis is one of the most satisfactory and reliable drugs in the treatment of menorrhagia. It is particularly useful in those cases which depend upon slight inflammatory conditions of the mucous membrane, and in that very common class of cases of moderate menorrhagia where no anatomical change can be found to account for the increased flow. It may be given in doses of twenty to thirty minims of the fluid extract three times a day during the inter-menstrual period, or in the less severe cases only during the week preceding the flow.

Iron. The drug which is of value in the largest number of cases of profuse menstruation is perhaps, strange to say, iron. *A priori* one would expect iron to increase the flow, and so it does in those cases where anæmia and debility are associated with amenorrhœa or scanty menstruation. But, as has been pointed out above, menorrhagia is not infrequently a symptom of debility, the atonic state of the uterus which results from the generally depreciated state of

the system favoring an increased menstrual flow. Sometimes we find other evidences of impaired nutrition preceding the menstrual aberrations, as disorders of digestion, loss of flesh and strength, neuralgias, or circulatory disturbances; in other cases the first marked symptom of overtaxing the strength may be a profuse menstrual flow. In either case iron is indicated, but in the latter class the effect of a short course of ferruginous tonics is often surprising. The tincture of the chloride of iron is decidedly the best form of iron in these cases, and ten to fifteen drops given largely diluted three times a day after meals during a single inter-menstrual period will often be followed by a surprising diminution in the amount of the next menstrual flow.

There are other preparations of iron which may be substituted in cases of a milder type, which are more elegant, and not open to certain disadvantages which the tincture of the chloride possesses. Rabuteau's pills, the citrate of iron and quinine, or Blancard's pills may be mentioned as examples of a class of remedies which the reader can add to as his experience suggests.

We occasionally meet with an analogous form of menorrhagia in nursing women, when the drain of lactation is poorly borne, and the monthly loss of blood is only another factor added to the strain she is already under. Some one of the various preparations of iron will often be of marked benefit in these cases.

Tincture of iodine in ten drop doses largely diluted has also been recommended for menorrhagia.

Sedatives. There is a class of remedies, which, while not properly hemostatics, yet deserve mention here. I refer to the sedatives, such as opium, chloral, cannabis Indica, valerian, and aromatics, of which viburnum may be taken as a sample. While these are perhaps oftener used for dysmenorrhœa, yet we not infrequently see cases where both excessive and painful menstruation are combined, and where the use of some sedative or antispasmodic is followed not only by the relief of the dysmenorrhœa, but also by a diminution in the amount of blood lost.

Worry and fright, exposure to cold and wet, and excessive coitus, while oftener causing scanty and delayed menstruation, may have the opposite result, and in such cases a full dose of opium or cannabis Indica will have a most happy effect in quieting the nervous system and at the same time checking the flow.

So much for drugs. Their sphere of action is limited, and they should be exclusively used only when there is some valid reason for abstaining from local treatment, or, as adjuvants, in connection with the direct treatment of the cause. If I have dwelt upon their indications rather at length, it has been because I am conscious that they have been neglected in favor of the more brilliant methods with speculum and applicator, and am sure, that, in the case of young girls, a good deal of unnecessary treatment might have been avoided by their intelligent use. The results from their employment would be much more satisfactory if the indications were more carefully

studied, and the appropriate remedy for the particular abnormal condition were chosen.

Local treatment. We come now to the consideration of local treatment of menorrhagia. This resolves itself into two distinct aims: First, the modifying or checking the hemorrhage at the time; and, second, the treatment during the inter-menstrual period of the morbid condition, which is the ultimate cause of the menorrhagia. The latter treatment is necessarily as diverse as the cause, and it is not our purpose here to enter into that in any detail. When we come later to speak of the different pathological conditions of which menorrhagia is a symptom, we shall outline the treatment suitable for each.

Curetting for hyperplastic endometritis, packing for displacements with adhesions, and general antiphlogistic treatment for inflammatory conditions, will be described under their appropriate heads.

Rest. As a rule, it is not necessary to employ any active measures to check the flow in menorrhagia. Such general precautions as rest in bed, light diet, avoidance of constipation, and some sedative treatment are all that is necessary. This very simple treatment is often, however, the very thing which the patient objects to, and which it is difficult to induce her to follow, and yet its careful observance would, in a large number of cases, prevent graver developments, and avert the necessity of severer measures. Absolute rest in bed for a day or two, or possibly three, when the flow is apt to be most profuse, will often, if begun early enough, check this morbid tendency to excessive flowing. This im-

portant rule cannot be too strongly insisted on by the family physician in the case of young girls when the early years of menstrual life show a tendency to this trouble. Occasionally, however, it becomes imperative to do something more to check the flow. In such cases the course of treatment should be as follows :

Hot douches. First, order hot-water injections, three times a day, specifying full six quarts, at a temperature of 115° F., with the patient in the recumbent position. This will sometimes modify the severity of the hemorrhage; but if they fail, then substitute small injections with some astringent. A good way is to add to the last quart of the full douche a tablespoonful of powdered alum. If the alum is not efficacious, it is of little use to substitute other astringents. Tannin has the disadvantage of staining the linen.

Vaginal tampon. If these measures are of no avail, and the hemorrhage persists, systematic packing the vagina is the next thing to be done. Inasmuch as cases of uterine hemorrhage are usually emergency cases, it is wise to be provided with some suitable material for packing. It is true that on a pinch almost any soft material may be used, as cloth torn into strips, a roller bandage, old handkerchiefs, or cotton-batting, but it is better to have just the right thing prepared and ready for use. The material that I have found best is the strip cotton described when speaking of the glycerine dressing (see p. 102). This may be torn into short lengths, folded over so as to form small pieces, perhaps an inch or more

square, soaked in water and wrung out nearly dry (Fig. 29). A little carbolic acid added to the water will keep them sweet until used. A vial packed full of these small cotton tampons can always be carried in the instrument bag, and they are ready for use in an emergency.

FIG. 29.



Cotton tampon, one-fourth size.

It is important that the tampon in these cases should be firm. Only as the vagina is packed tightly and full can any effect be expected on the hemorrhage. To secure this end the clothing should be absolutely loose about the waist, the patient brought into Sims's position on a table, and using Sims's speculum, the tamponade be systematically and thoroughly made. All clots should be wiped out of the vagina, and then the pieces of cotton placed in position with the forceps. Taking them up one by one, the posterior cul-de-sac should first be partly filled, then the lateral and anterior cul-de-sacs, one piece being held in position by the beak of the speculum until the next is placed. The packing should be pressed against the sides of the vagina, and the vaginal vault raised as high as possible, the cervix being left free until the cotton has come down to a level with the external os. Then the whole vagina should be gradually filled, taking care in withdrawing the speculum

not to engage its point, until the tampon has come down to just within the vulvar orifice. Sometimes, instead of the last few layers of pieces of cotton, a large wad of dry cotton may be substituted, which will cause less pressure on the urethra. The patient should not be allowed to walk from the table to the bed, but should be carried, and should be kept as quiet on the back as possible, so as to avoid a recurrence of the hemorrhage.

Removal of tampon. This packing may be allowed to remain two days, provided there is no leaking; and some of the lower pieces may be taken out within twenty-four hours in order to relieve the bladder, if there is trouble in passing water. To remove the tampon it is not necessary to disturb the patient, and as it is in these cases often very undesirable that she should be moved, the following method should

FIG. 30.



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Tampon extractor.

be employed: As she is lying on her back, she is directed to flex her knees. The thighs are then separated and covered each with a blanket, exposing only the vulva. The operator, sitting preferably on the right side of the bed, facing the patient, passes the left forefinger, well lubricated, into the vagina until it touches the lowest packing. A tampon extractor (Fig. 30), which is merely a double screw, is then carefully passed in on the finger and gently screwed into the lowest piece of cotton and then

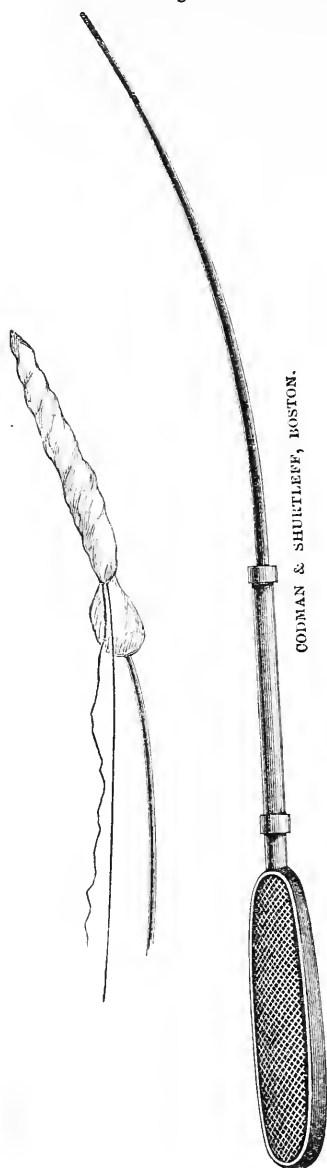
withdrawn. Care should be exercised not to scratch the patient with the extractor, nor in twisting to catch the hair. Piece after piece may be thus removed without disturbing the patient in the least.

Uterine tampon. Should the tampon not restrain the hemorrhage, which is sometimes the case, and should blood leak through, it should be removed and renewed, this time with the addition of a tent of styptic cotton in the canal of the uterus itself. This tent is prepared by winding cotton impregnated with iron about an applicator, making a small, cone-shaped mass, which is inserted into the canal. A good way of preparing the cotton and having it always ready for use, is to separate some fine absorbent cotton into thin layers, soak them in a mixture of one part of liq. ferri subsulphatis to two parts of water. These should then be squeezed moderately dry, folded, and packed away in a bottle, ready for use. With the water-packing for the vagina, and the iron cotton for the uterus, no case of hemorrhage need be formidable.

The applicator is a flexible rod, armed with a slide for pushing off the tent when once *in situ* (Fig. 31). The size of the tent must be proportioned to the size of the canal, remembering that in cases of hemorrhage there is usually softening and some dilatation. The end of the applicator should be smeared with vaseline or some ointment, and the styptic cotton wound smoothly and carefully on it (Fig. 32). If the cotton is cut or torn into triangular-shaped pieces, the tent can be easily and neatly made. The appli-

cator should be placed parallel to the short side, the hypothenuse being the free edge, and the cotton

FIG. 31.



Tent applicator.

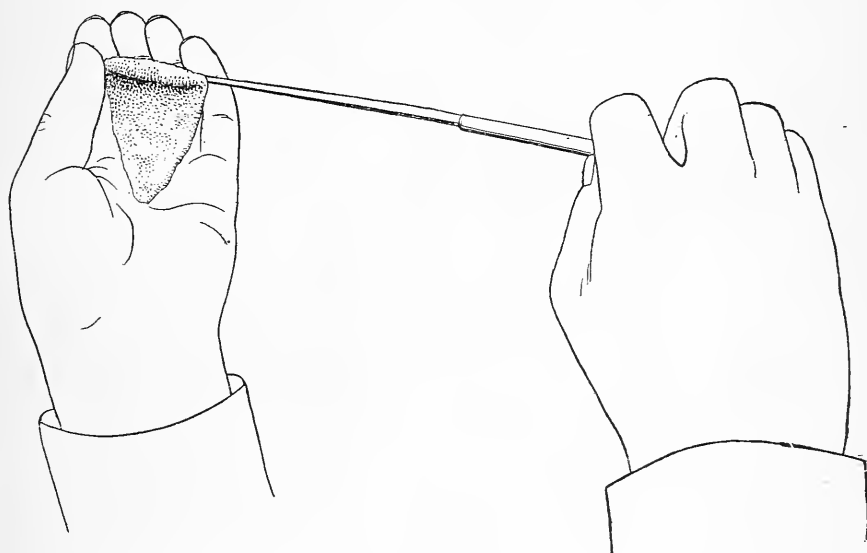
wound on (Fig. 33). The result is a smooth, tapering tent which will be readily pushed into the canal. To facilitate its introduction, it is well smeared with vaseline or cold cream.

FIG. 32.



Tent applicator with cotton tent.

FIG. 33.



Making cotton tent.

The cervix should then be steadied with a tenaculum hooked deeply into the anterior lip, and the tent pushed firmly into the uterine canal, so that the end is well through the internal os. The slide is then pushed up against the tent and held there while the applicator is withdrawn. The vagina is then

packed in the usual way. As, in order to be effectual, the tamponade of the uterus and vagina must be done thoroughly, it is well where there is much sensitiveness or nervousness to give ether. It should be borne in mind, under such circumstances, that in the absence of any expressions of pain on the part of the patient, and with the perfect relaxation, it is possible to pack too tightly, and there have been cases of rupture of the vagina from this cause.

The continuance of the hemorrhage after so thorough a procedure as has been described is rare. Should it occur, it is fair to conclude that some condition of the interior of the uterus is keeping it up, and a thorough curetting of the uterine cavity, in the manner to be described when speaking of endometritis, should be tried.

General course of treatment. It is manifestly impossible to give any precise rules as to when in the course of the menstrual flow to apply these various remedial measures. Where the hemorrhage is alarming, they should be tried one after the other in quick succession. If, however, the flow in itself is not immediately serious from its amount, some such general principles as the following may be laid down. Should it be excessive from its long continuance, it should be allowed to take its natural course for four or five days, and then the various hemostatics, beginning with hot-water injections, should be tried. Three injections, at intervals of four hours, will suffice to test their value; two alum injections at the same interval may then be tried; then, if the flow still continues unabated, pack the vagina.

Should the duration of the flow be normal, but the amount alarming, more active treatment is necessary. The average number of napkins that the woman uses, and their condition, with the number and size of clots, should be ascertained as definitely as possible, preferably by inspection, and that should serve as a basis for our treatment. It is unwise to modify too much a profuse menstruation, provided the woman has been flowing a great deal for months or years. Thus, if for a long time a patient has been in the habit of using twenty-five or thirty napkins, it would be manifestly imprudent to stop the flow after five had been used. In such a case I would have the injections begun after twelve ordinary napkins had been used, hoping to limit the flow to somewhere between fifteen or twenty. After a few months, it might be possible still further to reduce the number to ten or twelve. Or if, in a feeble woman, fifteen napkins are found to be a drain, begin treatment after six or seven have been used.

It is sometimes the case that the greater part of the flow is confined to one day, usually the second or third, and that absolute rest in bed during that time will result in such a diminution in the flow as to obviate the necessity for any further treatment.

In conclusion, it is only necessary to urge again the importance of not allowing a woman to flow from month to month so as to weaken her, when an examination may reveal at once the cause, and some simple treatment may entirely relieve her.

CHAPTER VI.

DYSMENORRHŒA.

THE last of the anomalies of menstruation is dysmenorrhœa, or painful menstruation. This, like all the others that have been spoken of, is merely symptomatic, but it is so often the only or chief complaint, that it deserves special consideration.

There are certain difficulties met with at the outset, in judging of the pain connected with menstruation, which should be mentioned. In the first place, pain to a greater or less degree is so common at the time of the menses, that it may be considered a normal accompaniment of the process. Certainly the absence of pain is so rare that it may justly be looked upon as an anomaly. The result of this is, that the pain is not given its true significance, and is liable both to be neglected on the part of the patient, and underestimated on the part of the physician.

Again, the inability on the part of the patient to intelligently describe and definitely locate pain in the pelvis, and the meagre observations and scanty mention in the text-books and medical literature generally of the significance of the different kinds of pains complained of, render the subject obscure.

There have, however, been certain forms of dysmenorrhœa described, and though some of them rest

on a rather theoretical basis, and serve, perhaps, to cloak our ignorance, yet for practical purposes, especially as regards treatment, the division into several varieties may be maintained.

Varieties of dysmenorrhœa. The most common forms are the obstructive (under which head is also included the spasmodic), the congestive, and the ovarian or neuralgic. It is, of course, impossible to classify definitely under these heads all the cases of dysmenorrhœa we meet with. Our knowledge of the pathology of menstruation, of the changes which are present in the mucous membrane of the uterus, and of the relation of the nerve supply of the whole genital apparatus to the muscular structure of the uterus and to the circulatory changes, is too meagre to permit of accurate explanations. In the majority of cases, however, it is possible to gain from the history and examination of the case hints which may suggest a preponderance of one or the other causes, and lead us to try one or another mode of treatment.

Character of pain. Very great gain may be made in this respect if our questioning about the pain is close and definite. It is not sufficient to know that there is pain, and that it is slight, or moderate, or severe. The exact time it appears, its duration, seat, and character, should all be very carefully investigated. In the first place, the patient should be questioned as to whether the pain comes on before, or with, or after the flow; if before, how long, whether it grows worse until the flow appears, if it then is relieved or aggravated, and how long it lasts after the flow begins. Its exact seat should be inquired into,

special stress being laid upon the part where it is most severe, whether in the back, or lower abdomen, or groins, or whether it changes its situation from time to time. Its character is important, whether continuous or spasmodic, sharp and cutting or dull and heavy, steady in one place or radiating, associated with any peculiarities in the flow, as worse when the flow is scanty or the reverse, intense just preceding the appearance of a clot and then a period of relief, whether associated with nausea and faintness or not. If a series of such questions is asked, data may be obtained which will be of material help in justly estimating the cause.

Obstructive dysmenorrhœa. Of the different forms of dysmenorrhœa the first to be considered is the obstructive. Here the exudation of blood from the mucous membrane proceeds normally, but owing to some obstruction either in the canal of the uterus or in the vagina, usually the former, the blood fails to escape as it should, and collecting and sometimes coagulating, excites contractions which cause pain. In these cases the pain usually comes on after the flow has started, is sharp and cramp-like, mostly confined to the lower abdomen, but occasionally very severe in the back at the level of the lower lumbar vertebræ, is intermittent in character, and at times very severe, resembling labor pains. Sometimes there is a clear history of pain accompanying the expulsion of a clot, followed by relief.

Narrowing of os internum.—With a history of this kind we are led to suspect some obstruction to the free exit of blood. The most common cause of this

is a narrowing of the canal of the uterus at the os internum, rarely at the os externum. Such narrowing is usually due to a thickening and rigidity of the tissues in the immediate neighborhood of the inner os, by which the calibre of the canal is encroached upon. This is a permanent change, and can be demonstrated during the inter-menstrual period by the passage of instruments. Sometimes, with the same series of symptoms, no such stenosis is found on examination, and the theory of a spasmodic contraction at this point has been advanced to explain the pain. *A priori* such a theory seems very plausible, and the success which has followed treatment applied in accordance with this view is also in its favor. Whether such spasmodic contraction does occur in these cases is difficult of demonstration; at least the natural repugnance to, and possible danger of examining during menstruation, which is the only time when the narrowing would be found, have naturally deterred observers from ascertaining the fact. The only investigations of the kind, by Dr. Burton, have seemed to throw doubt upon its occurrence. He claims not only to have failed to find any narrowing of the canal, but to have found it even more pervious than in the inter-menstrual period.¹

Sensitiveness of the os internum.—The probable explanation in many of these cases is, that there is excessive sensitiveness at the os internum. This sensitiveness is found present in a large number of cases on the simple passage of the probe. As the

¹ Brit. Med. Journ.; Sept. 27, 1884.

instrument passes the internal os, there is an expression of pain on the part of the patient, and it is easy to see how this might be excited by the menstrual flow, especially since the uterus is then congested. This theory would make this form of dysmenorrhœa more nearly allied to the congestive.

Uterine polyp.—Another cause for obstructive dysmenorrhœa is the presence of a small polyp situated near the os internum, which, acting like a valve, prevents the free flow of blood. An allied condition which is occasionally met with, and which is apt to be very obstinate, is a small fibroid, interstitial or submucous, situated either in the upper part of the neck or the lowest part of the body, which presumably swells during menstruation and hinders the free escape of the menstrual blood.

Flexions.—Flexions of the uterus may, by narrowing the calibre of the canal at the point of flexion, cause in some cases obstructive dysmenorrhœa, but from the fact that such malpositions are usually of gradual development, giving the tissues time to accommodate themselves to their new relations, and also because the curve of the canal, except in the most marked cases, is gradual, and the sound passes easily, I am inclined to the belief that the dysmenorrhœa, when present, is more often of the congestive type than obstructive. In acute flexion in a subinvolted or flabby uterus, the size of the canal may be affected by the bend, but such cases are rare.

Examination for stricture.—The existence of a so-called stricture of the canal of the uterus is determined by the passage of instruments of different calibre. It

is very rare that the small flexible silver probe (Fig. 34), which is the only instrument that in the majority

FIG. 34.

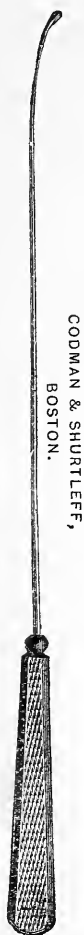


FIG. 35.



FIG. 36.



Uterine probe. Simpson's uterine sound. Peaslee's sound.

of cases it is necessary to pass into the womb, will fail to find its way. Much patience and skill are often

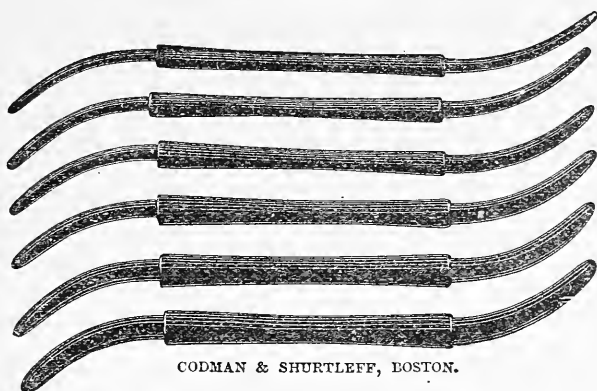
required to find the right curve and direction, but the canal is seldom so contracted that it will not go by. If there is reason to suspect a narrowing, larger instruments, such as the sounds of Simpson (Fig. 35), and Peaslee (Fig. 36), should be successively tried. The normal canal will usually admit Peaslee's sound, which has a diameter of 5 mm. Should Simpson's sound, which is smaller, fail to pass, there is decided narrowing. It sometimes is the case, that after the instrument has been passed in as far as the internal os, it is arrested. If now steady pressure be kept up for a minute or two, the sound will slip by with a jerk. The sensation conveyed is often that of passing over a fibrous band, which yields on pressure sufficiently to allow the instrument to pass, and then grasps it firmly again. The details of the method of passing probe and sound, and the precautions to be observed, will be given in the chapter on displacements.

Treatment. Should a narrowing be found, a safe method of treatment is the following: The first thing that suggests itself is to divide the stricture, but even if such a stenosis is found to exist, it by no means follows that it is the cause of the dysmenorrhœa, and that an operation for its division will be followed by relief. The operation itself, while a simple one, is yet not devoid of danger, and should not be unnecessarily undertaken. It is therefore wise to test the value of the method, which may be done by a temporary partial dilatation with graduated sounds. These are either of metal or hard rubber, usually

slightly curved to conform to the shape of the canal, and of gradually increasing diameters.

Temporary dilatation. I have found Hank's hard-rubber dilators (Fig. 37) of service, which comprise

FIG. 37.



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Hank's dilators.

twelve sizes, numbered from 9, which has a diameter of a little under 5 mm., to 20, which has a diameter of 10 mm. These may be used in the following way: One or, at most, two days before the expected sickness, with the patient in the semi-prone position, and Sims's speculum *in situ*, the cervix is firmly held by a tenaculum, and a dilator as near the size of the sound that we have found will pass, is carried through the internal os. This is allowed to remain a moment, then rapidly withdrawn, and the next size passed quickly in. This is repeated, each dilator remaining in position a short time, until a gain of three or four degrees has been made. A glycerine dressing is then placed against the cervix, and the patient placed in bed, where she should remain for some hours, to

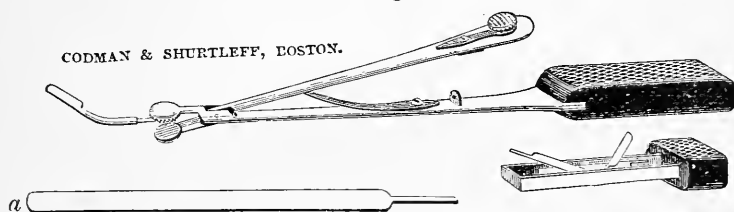
avoid inflammatory reaction. This slight operation usually causes a good deal of pain of the same character as is complained of at the time of the sickness, and it is usually wise to do it at the patient's house. If, as in the majority of cases results, the pain at the next menstrual period is markedly diminished, it is better to wait a month or two to see if the old trouble recurs. If it does, the indication is clear for some more permanent dilatation, either by discission or divulsion. These are operative procedures which the general practitioner should feel competent to perform, and a short description of both methods will properly come here.

Choice of operation. Our choice between the two methods should be governed by the condition of the tissues at the point of narrowing. If there is a hard, unyielding, gristly ring at the os internum, a condition of things which may be often determined by the sensation communicated by the passage of the probe or sound, the surer operation is by the knife. The only objections are the possibility of hemorrhage and of septic infection, both of which may, with reasonable certainty, be avoided if care be used. Discission is better for these cases, for with the unyielding nature of the tissues, sufficient dilatation to accomplish much good is accompanied by considerable risk of tearing into the substance of the uterus, and there is more apt to be a gradual return to the old condition. The method of relieving these strictures by the knife has fallen somewhat into disuse of late years, partly because it was advocated too indiscriminately, and partly because, the operation

being considered a simple one, sufficient care was not exercised to guard against the two dangers above referred to.

Discission. Previous to the operation, the patient's bowels should be thoroughly moved, preferably with castor oil, as its action is thorough, and it leaves the bowels in a quiet condition. The patient should then be etherized, and placed in the semi-prone position. Sims's speculum having been introduced, the anterior lip of the cervix is seized with a tenaculum, and the probe is passed to verify the direction of the canal. The blade of the uterotome is then passed in through the internal os, and the ring is divided in several places, and as it is withdrawn, the whole length of the cervix and the external os are incised laterally, first on one side then on the other. The choice of a uterotome should be governed by two considerations, that the blade is narrow and that it will admit of movement in various directions. The instrument which best fulfils these indications is Sims's (Fig. 38), the handle of which contains a small

FIG. 38.

Sims's uterotome. *a*. Straight blade (full size).

sliding receptacle in which are four blades, two straight and two slightly curved, one set narrower

than the other, so that they can be carried through any canal however narrow or curved. The curved blades are better adapted for nicking the tight stenosis, the straight for incising the whole length of the cervix. The extent of the cutting should be tested by passing a large sound or one of Hank's dilators. Occasionally there is free hemorrhage from cutting a branch of the circular artery, but it can be controlled in the following way:

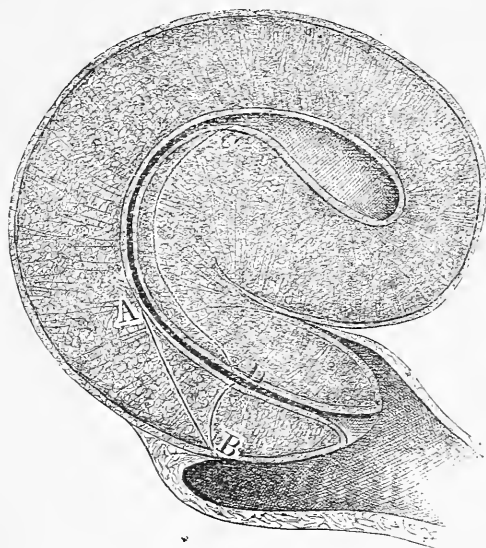
The natural tendency of a stricture cut in this manner is immediately to contract again, unless some means are taken to keep it open. This end, as also that of controlling the hemorrhage, may be attained by plugging the canal of the uterus with a tent of styptic cotton. This is prepared in the same way as was described when speaking of the tampon in cases of menorrhagia on page 125. It should be large enough to fill up the whole calibre of the canal, should be passed well into the uterus, and the vagina tightly tamponed with cotton dressings. The lower dressings may be removed in forty-eight hours, and the upper ones, including the uterine tent, on the fourth day. By that time suppuration will have occurred about the tent, and it will be loose. As a matter of precaution, the patient should be kept quiet in bed for a week, the bowels not allowed to move until the fifth or sixth day, and the diet restricted. After the first menstruation following the operation, the sound should be carefully introduced to test the permanency of the operation.

If, in addition to the stricture, there is a forward flexion of the neck, a malposition which is connected

with the development of the uterus and does not admit of relief by pessary, the cervix should be incised backward, so as to straighten the canal as much as possible (Fig. 39).

Divulsion. Where the tissues are yielding and elastic, quite as good results may be obtained by divulsion, and this operation is not so likely to be

FIG. 39.

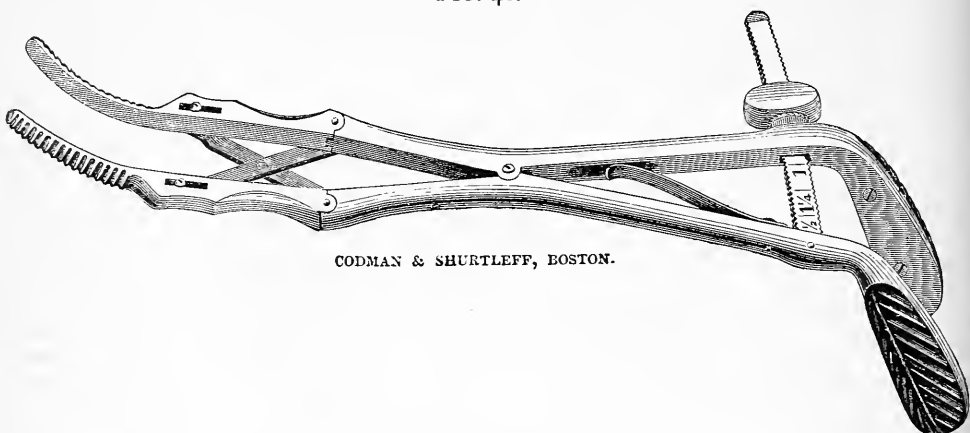


Series of incisions in anteversion of body and neck. (EMMET.)

followed by hemorrhage or septic infection as the former. Cases which have been either partially or for a time relieved by the minor dilatation with graduated sounds will be found to be particularly amenable to this mode of treatment. The same precaution should be observed as for the cutting operation, and under ether a strong dilator, of which Goodell's modification of Ellinger's is a good example (Fig.

40), should be passed through the internal os, and slow dilatation made until the necessary size has been attained. The degree to which it may be carried, and the time occupied, will depend upon the readiness of the tissues to dilate. If unyielding, the

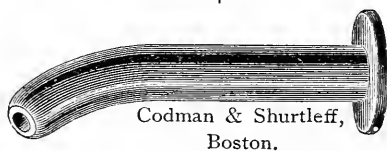
FIG. 40.



Goodell's modification of Ellinger's dilator.

dilatation should be slow and gradual, with frequent pauses, and a separation of the blades of from a half to three-quarters of an inch is often all that it is wise to attempt. Other cases dilate easily up to an inch.

FIG. 41.



Hard rubber plug.

Higher than this it is unnecessary to go. To insure a good result it is necessary to keep the canal patulous. This is best accomplished by introducing into the uterine canal a hard rubber plug (Fig. 41) which

should be left in position three weeks or even longer. In order to retain it in position, one, or better two, wire sutures should be passed through the lips of the cervix and through holes made for that purpose in the base of the plug, and tightened. Where the patient can be kept under observation, it is well to leave the plug in the uterus through one menstrual period. Of course, the temperature should be carefully watched, and at the first symptom of trouble the plug should be removed and an intra-uterine douche given.

The existence of the other causes of obstructive dysmenorrhœa spoken of, a polyp or fibroid in the interior of the uterus, is determined by digital exploration, a procedure which will be described when speaking of tents and their use.

A simple polyp, when found, can be snipped off. The removal of a fibroid, situated so as to cause obstruction, is a more delicate matter, and the question of its advisability and performance comes more within the sphere of the specialist.

Dysmenorrhœa due to narrowing of the canal from a flexion, except anteflexion of the neck previously spoken of, is to be treated by rectifying the malposition, and adjusting a pessary to hold the organ in place. The various methods of reposition, and the different forms of pessaries and their uses, will be fully explained in the chapter devoted to their consideration.

Congestive dysmenorrhœa. Congestive dysmenorrhœa is perhaps the most common form that we meet with. It is associated with so many morbid conditions of the pelvic viscera that to enumerate its causes

would be to exhaust pretty well the list of diseases of the uterus and its appendages and surroundings. If, however, the general principles of the conditions which produce it are considered, it will be an easy matter to apply them in the particular case.

Menstruation, when normally performed, presupposes the following conditions: First, a stimulus starting from the ovaries, and affecting the mucous membrane of the uterus; second, normal circulation in the uterus; third, special changes in the mucous membrane lining the uterine cavity, which admit of the regular, painless escape of a normal amount of blood. If the first condition of normal menstruation is at fault, we are apt to have the form of dysmenorrhœa known as neuralgic or ovarian. If the second and third conditions are not present, we have the form now under consideration—the congestive.

Active and passive congestion. Anything which interferes with the normal, free circulation of blood in the uterus may be a cause of pain at the time of menstruation. The organ becomes overcharged with blood, either because the influx is so active that the venous system is inadequate to carry it off—active congestion—or there is obstruction to the passage of the venous blood, and the organ becomes engorged from passive congestion. The first stage of chronic metritis, where the uterus is large, succulent, and full of blood, is an example of the first condition; the later stage of the same disease, where the chronic inflammatory process has resulted in a formation of connective tissue with a consequent hardening of the whole organ and diminution in the calibre of the

bloodvessels, particularly the veins, is an example of the second condition.

Pathological changes. The most common pathological changes which are associated with congestive dysmenorrhœa are, first, inflammatory processes in the endometrium; second, changes in the tissues of the uterus, usually the result of parturition, beginning with subinvolution, and passing through the stage of chronic metritis to that of areolar hyperplasia; third, displacements; fourth, salpingitis, pelvic cellulitis, and peritonitis. Not infrequently two or more of these causes are present.

As will be seen from the above enumeration, this form of dysmenorrhœa is more distinctly symptomatic than the other forms, and, as a natural result of this, our treatment must be almost exclusively applied to remedying the various pathological changes. In the majority of cases the amount of the flow is not materially affected; where it is changed, it is apt to be increased rather than diminished.

Treatment. Our treatment of the causal conditions is to be carried out during the inter-menstrual period, and the severity of the pain at the time of the flow must be controlled by the careful use of sedatives and such general measures as experience has found of use.

Rest in bed, for the first twelve or twenty-four hours, is of great importance where the pain is severe; where that is possible, it should always be insisted on, and, if faithfully carried out, will sometimes obviate the necessity of drugs. The effect of rest may be aided by the use of hot applications to the

lower part of the abdomen. A rubber bottle filled with hot water, or spongio-piline wrung out in hot water, and sprinkled with a few drops of spirits of turpentine, or, in severe cases, a large flaxseed poultice, will not infrequently have a very soothing effect.

Hot, stimulating drinks are popularly supposed to make the flow easier and alleviate the pain. Gin is the most common remedy of this class, and probably does good by quickening the circulation generally, with perhaps a little more decided action upon the pelvic circulation.

Aromatics, such as ginger, red lavender, and peppermint, have their advocates. Hayden's Viburnum Compound has seemed to be the most effectual remedy of this class, given in hourly teaspoonful doses in hot water for five or six times.

These milder measures are mentioned first, because it is by all means wisdom to avoid in these cases, if possible, the use of stronger sedatives and anodynes. Morphine should be used only in extreme cases and under the physician's supervision. The danger of forming the morphine-habit is, to be sure, much less with a pain which occurs only once a month and lasts but a short time; still, it is a consideration not to be overlooked. Especially is this true if the dysmenorrhœa has lasted for years, and local treatment directed toward the removal of the cause is neglected or refused. Under such circumstances it is better to vary the drug used, substituting cannabis Indica, or chloral, or Hoffmann's anodyne, or even inhalations of ether, for the more dangerous opium. Dry cups over the

lumbar regions or over the ovaries will often prove serviceable.

Never forget, however, that such dysmenorrhœa is, in the vast majority of cases, merely a symptom of some pathological change in the uterus or its appendages, and that our main efforts should be directed toward curing such disease. This should be plainly stated to the patient; and should be, as far as is possible, insisted upon as the only rational method of treatment.

Ovarian or neuralgic dysmenorrhœa. The third variety of dysmenorrhœa is the ovarian or neuralgic. This form is not so well marked pathologically as the others we have considered, for, in the majority of cases, it is not possible to discover, by physical examination, any changes in the ovaries to account for the pain. The microscope might possibly reveal changes of structure, but our study of the pathology of the ovaries is still in its infancy.

Symptoms. The history of such cases is pain in the ovarian regions, usually coming on from one to three or four days before the expected catamenia; often relieved when once the flow is fairly established, and influenced, as regards the duration and severity, by the amount of the flow, being less marked and of shorter duration when the flow is rather profuse, and *vice versâ*. The pain is apt to be sharp and neuralgic in character, and to radiate from the groin up along the sides, and particularly down the legs. It is more often on the left side than on the right, and if both sides are affected, the left is apt to be worse. Headache and nausea are prominent accompanying symp-

toms. Pressure over the ovarian regions causes pain, and the patient is very apt to say that the affected side is swollen.

By making ovarian and neuralgic synonymous terms, I do not mean to imply that all cases of dysmenorrhœa, where the pain is of this character, and nothing wrong can be discovered with either uterus or ovaries, are distinctly ovarian. The uterus itself may be, as far as I know, the seat of neuralgic pain; and we certainly meet with cases where that organ is clearly the seat of most acute pain, and yet not the slightest cause can be discovered by our most careful bimanual and instrumental examination.

Still, as the majority of such cases are ovarian, I have thought it wiser not to differentiate too much for fear of confusing. This division, of course, includes those cases where there are distinct changes in the ovaries which can be appreciated by the practised touch—changes in size, position, and consistency, all of which may be causes of pain.

Affections of tubes. The recent increase of attention paid to the pathology of the tubes points out a new and possibly frequent source of dysmenorrhœa in the inflammatory changes which we find in these organs. Simple catarrhal salpingitis may very likely be a source of much discomfort, much more such graver changes as hydro- and pyosalpinx.

Treatment. Our treatment for these forms of dysmenorrhœa must be largely general. As neuralgias in different parts of the body are most frequently associated with debilitated anæmic conditions, and are most often relieved by general hygienic and tonic

measures, so here we may expect the most from good food, out-of-door exercise, and ferruginous and other tonics. The one agent from which I should expect the most in the way of direct relief to the pain is electricity in the form of faradization or galvanism. Daily applications of a fairly strong faradic current through both ovaries to the back for from ten to fifteen minutes should be tried first. If relief does not follow, and especially if one or both ovaries are enlarged and prolapsed, one pole should be applied in the vagina, to the corresponding cul-de-sac, and the other to the abdomen, over the ovarian region.

Counter-irritation with tincture of iodine, applied every night for a few times until it becomes painful, and then omitted until new skin has formed, or the application of dry cups, will sometimes relieve the pain. A mixture of chloral hydrate and gum camphor, equal parts, laid on with a single thickness of linen, has proved efficacious in a number of instances.

Membranous dysmenorrhœa. Membranous dysmenorrhœa has been classed as a separate form by many writers, but it seems to me to come properly under the head of obstructive dysmenorrhœa, inasmuch as the pain seems from its character to be due to the efforts of the uterus to expel the membrane, which, having formed and become loosened, is to all intents and purposes a foreign body. It is a very rare affection, and the diagnosis should be considered doubtful until the microscopical examination of the supposed membrane has demonstrated the presence of the characteristic tissues and openings of the glands. Old blood-clot will often simulate true membrane to the

naked eye, and mistakes in diagnosis not infrequently occur from this cause.

The most prominent form of treatment will be local applications to the interior of the uterus, following out very nearly the rules to be laid down when speaking of endometritis. The application of the actual cautery to the mucous membrane lining the canal has been recommended.

CHAPTER VII.

DISPLACEMENTS OF THE UTERUS.

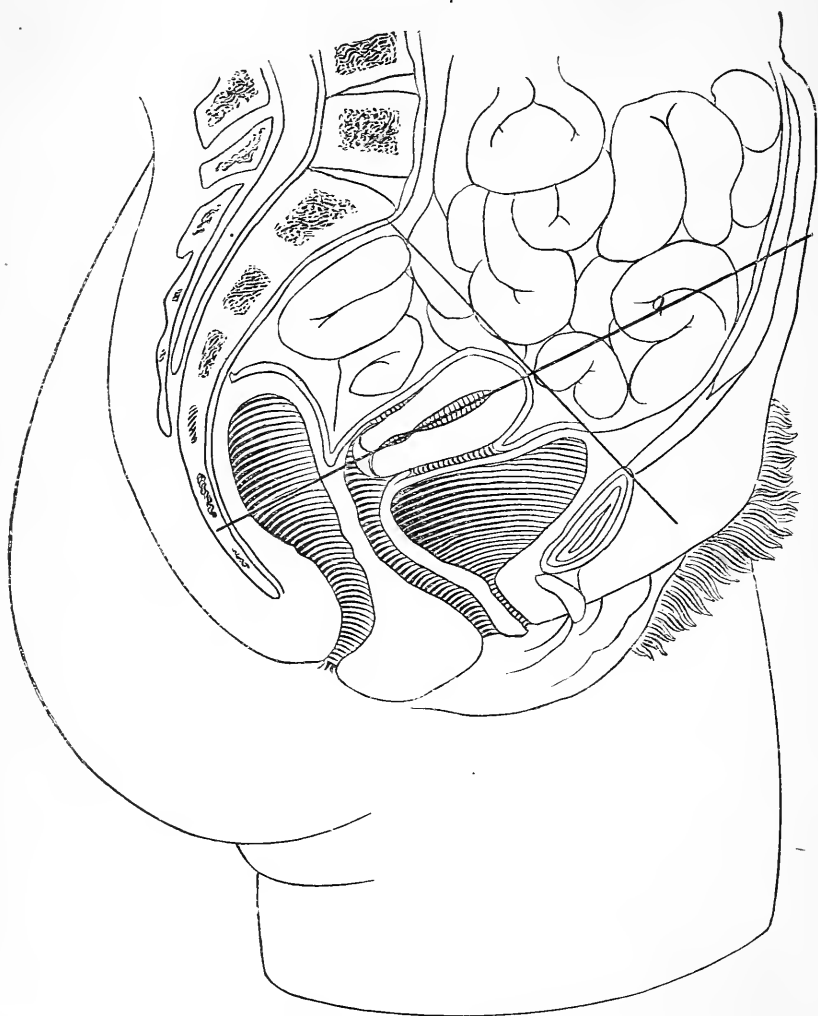
OF all the affections of the uterus with which we have to deal, displacements are perhaps the most common, and, at the same time, the least understood by the profession at large. Both as regards diagnosis and treatment, there is very much which ought to be thoroughly understood by the general practitioner, for nine-tenths of the cases of malposition which come under his observation are simple, and need only the ordinary application of common-sense principles for their successful treatment. It will be my aim in discussing this subject, as far as possible, to formulate certain general principles, which can be used in making a correct diagnosis, and applying the appropriate treatment.

The displacements to which the uterus is liable, and which we have to consider, are anteversion, ante-flexion, retroversion, retroflexion, latero-versions and flexions, prolapse, and procidentia. For their causes and relative frequency, the reader is referred to the various more elaborate treatises on gynecology.

The diagnosis of uterine displacements is absolutely dependent upon the bimanual examination. Whoever attempts to determine the position of the uterus by the simple vaginal exploration with one or two

fingers of one hand, will fail in a great many cases. The general rules for the conjoined manipulation have

FIG. 42.



Normal position of uterus.

been laid down in the chapter on "Methods of Examination," page 43, and it remains to apply those

principles to the diagnosis of the position of the uterus.

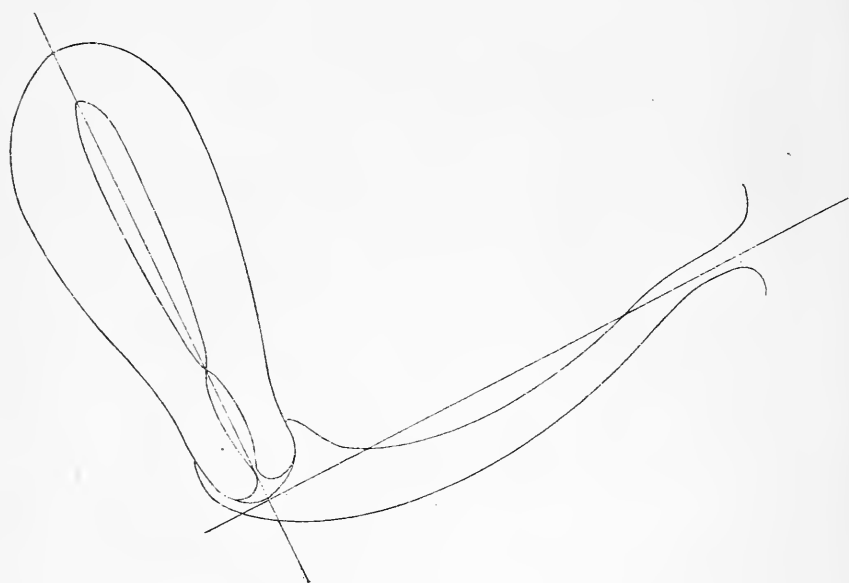
Normal position of the uterus. The normal position of the uterus has been a much-discussed question, but the general opinion of the best observers now seems to be that it has no fixed position, but varies with the degree of distention of the bladder, less with that of the rectum. With the patient in the erect posture, the uterus lies nearly at right angles to a line drawn perpendicularly through the axis of the body (Fig. 42). A line drawn from a point midway between the pubic bone and the umbilicus to the hollow of the sacrum, will fairly well represent the long axis of the uterus, and the fundus is about on a level with the superior strait. This is with the bladder and rectum empty. A full bladder will raise the fundus so that it may lie very nearly in the line of the long axis of the body. The cavity of the uterus itself has a slight curve with the concavity forward and downward.

Vaginal examination. With the patient on the back, the forefinger of the left hand, well oiled, is carried into the vagina, and passed up until it reaches the cervix. This is a conical-shaped body projecting into the lumen of the vagina, considerably firmer than the surrounding tissues, except when softened by pregnancy or disease, and varying in shape, size, and consistency from a multitude of causes.

Position of cervix. The direction in which the cervix points is the special feature to be noticed in this connection. If a straight line is drawn through the axis of the vagina, and another through the long axis of the

uterus, they will meet at approximately a right angle (Fig. 43). That is, the uterus, when in a normal position, lies nearly at right angles to the axis of the vagina. This is evidenced to the examining finger by the fact that the os uteri, which is at the end of

FIG. 43.



Relation of axis of uterus to that of vagina.

the cervix, impinges upon the ball of the examining finger (Fig. 44). If we find this to be the case, we are prepared to say that the *cervix* is in its normal position, as far as forward or backward displacements are concerned. On the other hand, the examining finger may on reaching the cervix find that the os strikes directly against its end (Fig. 45); and the finger, if it could be elongated, would pass on in the same direction into the cavity of the uterus, showing that the cervix is pointing in the axis of the vagina.

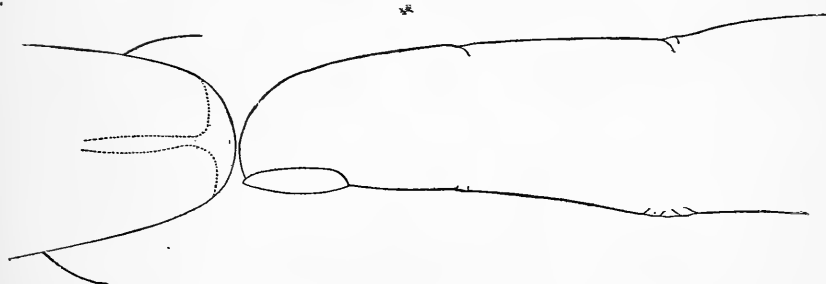
The cervix, again, may point further back toward the promontory of the sacrum, or forward toward the arch of the pubes.

FIG. 44.



Normal position of cervix.

FIG. 45.

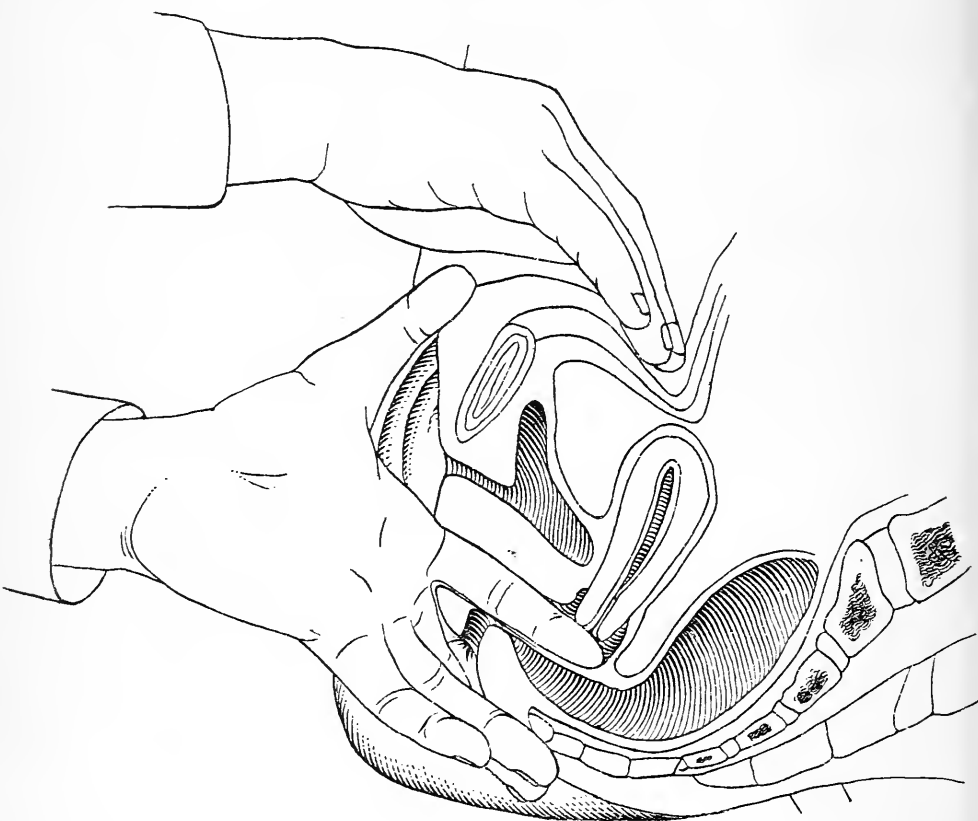


Cervix in axis of vagina.

Position of body. So much for the cervix, which is capable of assuming these various positions irrespective of the position of the body. The determination of the position of the body of the uterus is a more difficult matter. With the examining finger in the

vagina and the other hand making pressure outside over the abdomen, it is sought to make out the body of the uterus between the two. The finger in the vagina gently raises the uterus, and if a solid resisting

FIG. 46.

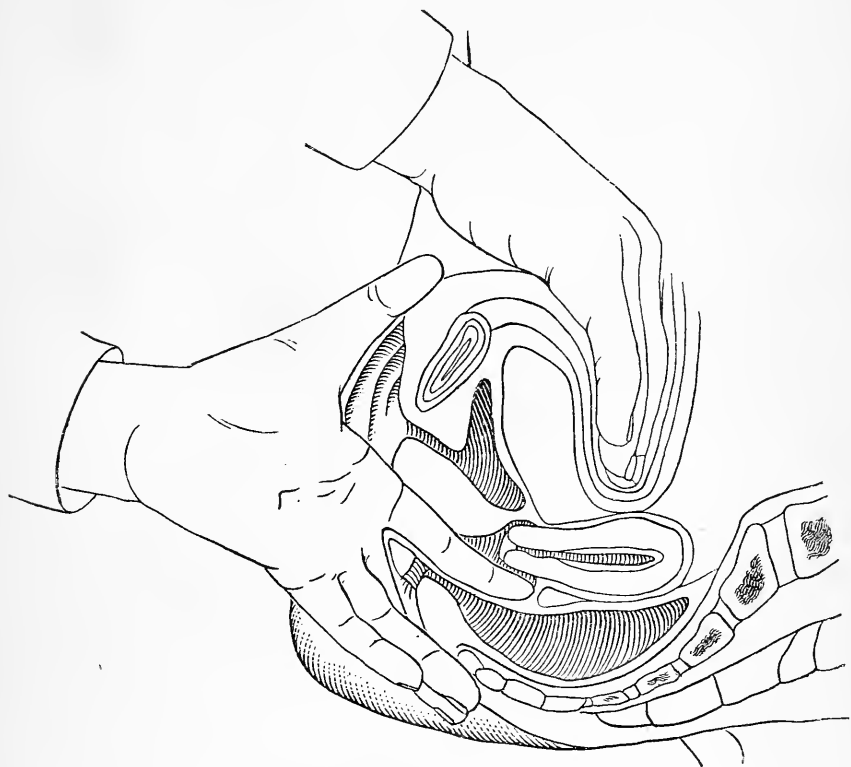


Bimanual examination.

body is felt between the hand on the outside, about midway to the umbilicus, and the finger inside, the two hands being separated enough to allow for the depth of the uterus and the thickness of the abdominal walls, the presumption is that the uterus is in a

normal position (Fig. 46). The distance the hands are separated is an important consideration, because with lax abdominal walls it is possible to palpate the uterus bimanually, even when it is retroverted, in

FIG. 47.



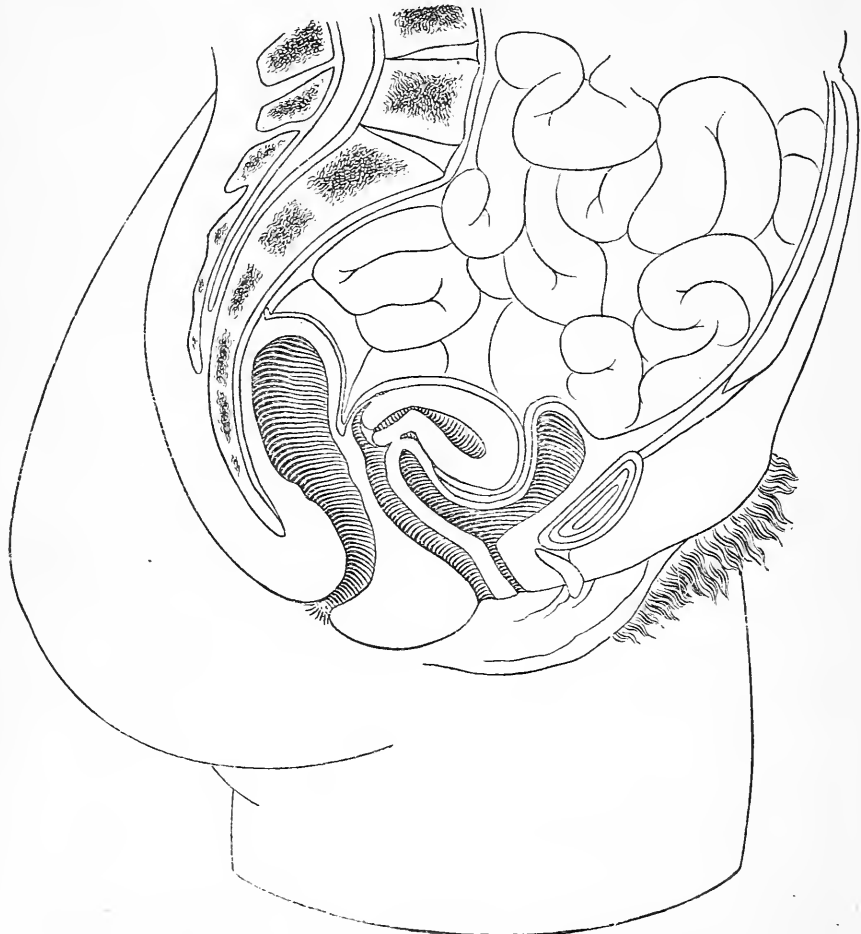
Bimanual examination in retroversion.

which case the anterior surface is pressed upon and not the fundus, and the distance between the two hands is less than in the former case (Fig. 47). With a normal position the body can usually be felt somewhat through the anterior cul-de-sac, while if the fin-

ger is carried past the cervix behind into the posterior cul-de-sac, it fails to meet with any resisting body.

Forward displacements. It may, however, happen that the cervix lies in its normal position, but the

FIG. 48.

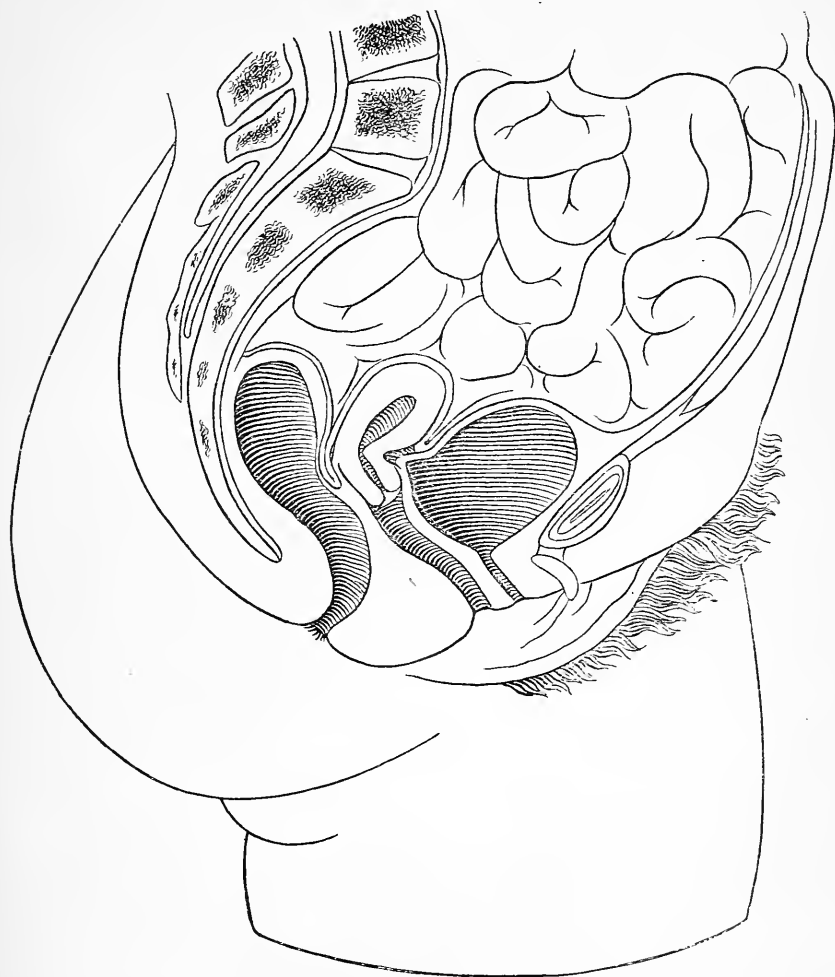


Anteflexion of body.

body lies either further forward or backward than it should. If the first, which is by far the most common, the body may be made out bimanually, but the

fundus is much nearer the os pubis, and the anterior surface is felt easily through the anterior vaginal wall. This is the condition of things in ante flexion of the

FIG. 49.

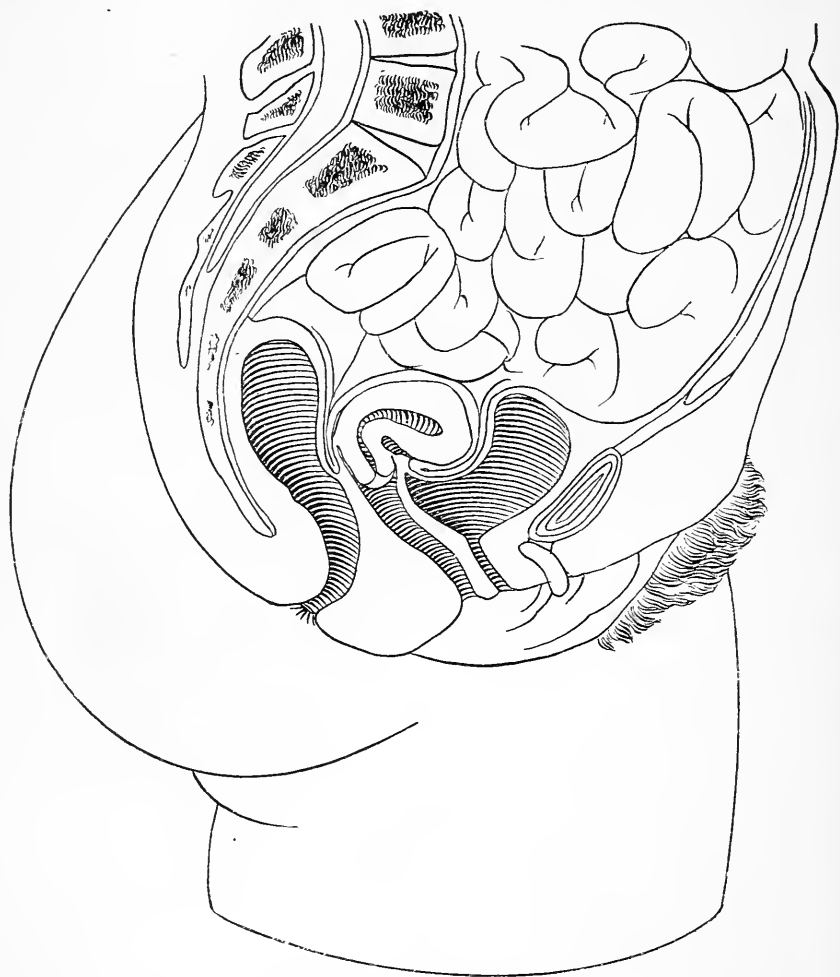


Ante flexion of neck.

body (Fig. 48). Or we may find the body in its normal position, but the cervix pointing forward in the

axis of the vagina. This constitutes antelexion of the neck, which is of congenital, or, more probably,

FIG. 50.

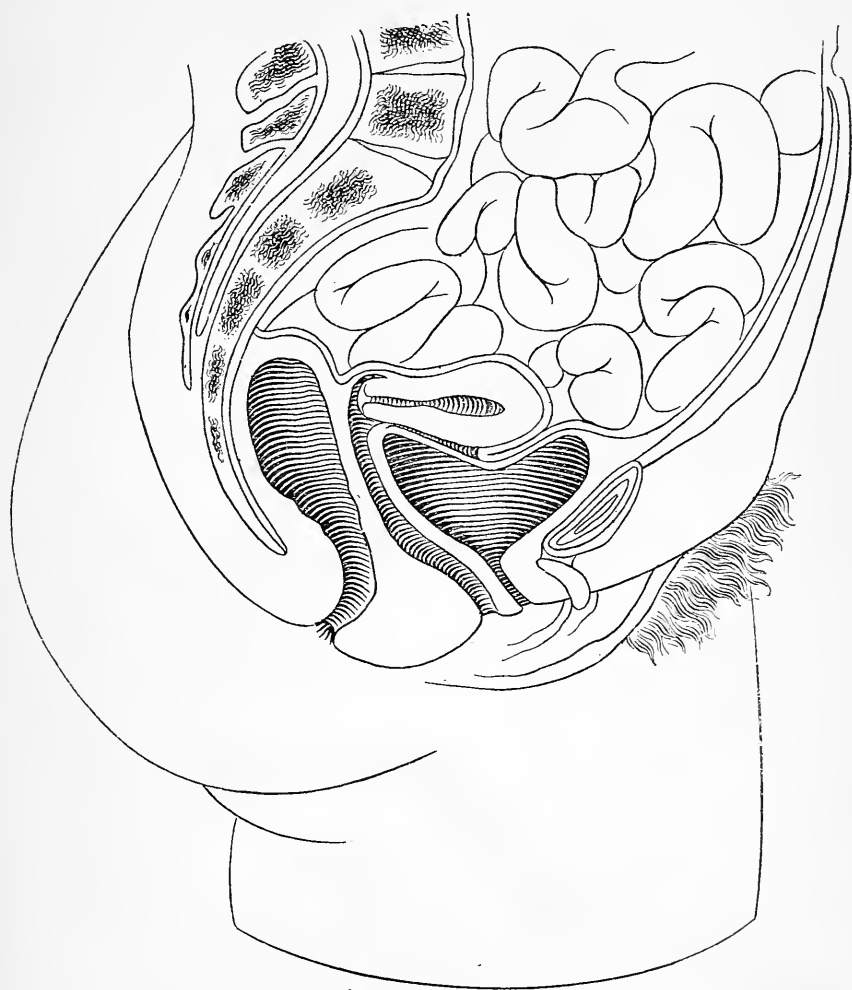


Antelexion of body and neck.

developmental origin (Fig. 49). Again, we may have both of the preceding conditions combined; the body and cervix both antelexed, forming an angle with

each other at the level of the internal os, so that the finger in the anterior cul-de-sac feels the body on one side and the cervix on the other (Fig. 50).

FIG. 51.

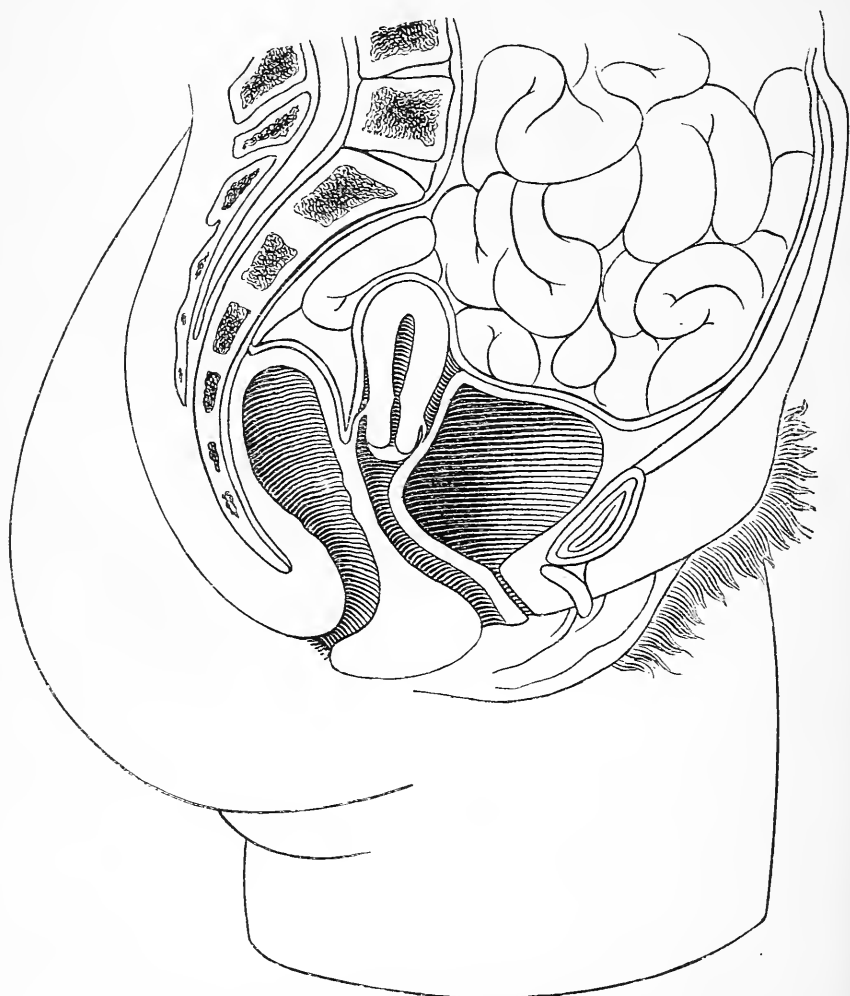


Anteversion.

Anteversion is merely an exaggerated normal position; the body somewhat lower and the cervix pointing higher up into the hollow of the sacrum (Fig. 51).

Backward displacements. As a rule, in backward positions the cervix points forward in the axis of the

FIG. 52.

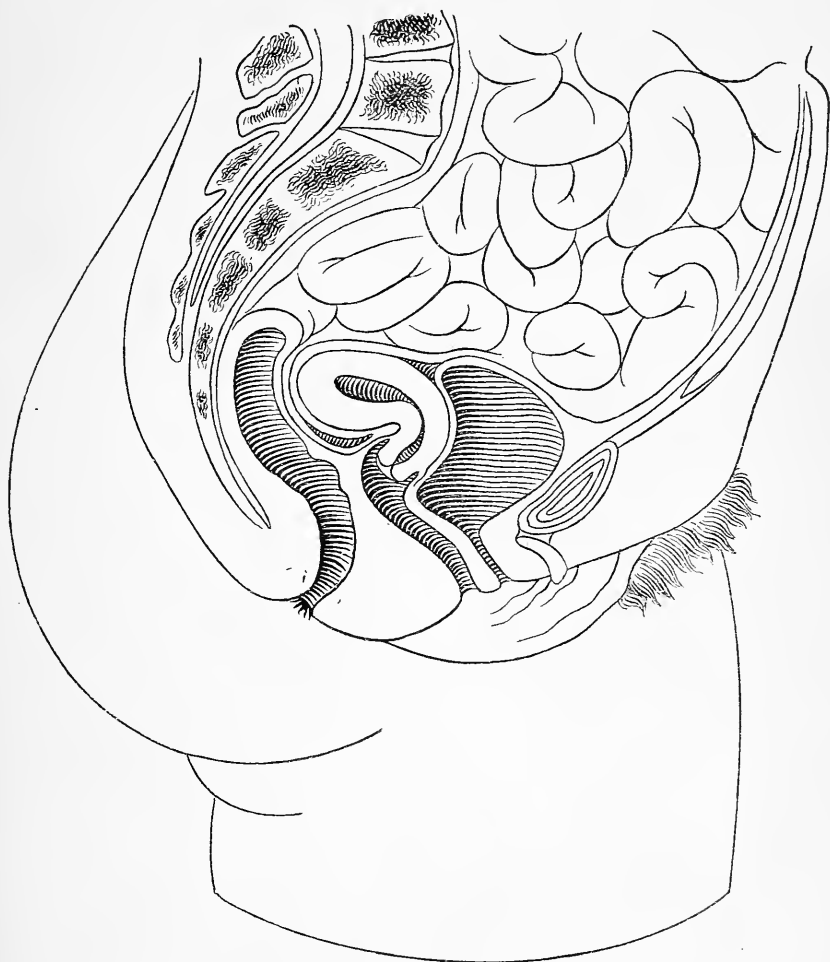


Retroversion.

vagina and the body is not felt by the hand on the outside. In women with lax abdominal walls the fundus may be felt in retroversion of the first degree,

but it is then further back than normal, and the cervix is pointing forward (Fig. 52). The examining finger fails to find any resisting body through the

FIG. 53.



Retroflexion.

anterior cul-de-sac, but if carried behind the cervix, feels the body of the uterus continuous with the neck as far up as the finger will reach. The more marked

the version the more easily will the body be felt behind. The impression conveyed to the finger in many of these cases is that the cervix is lengthened.

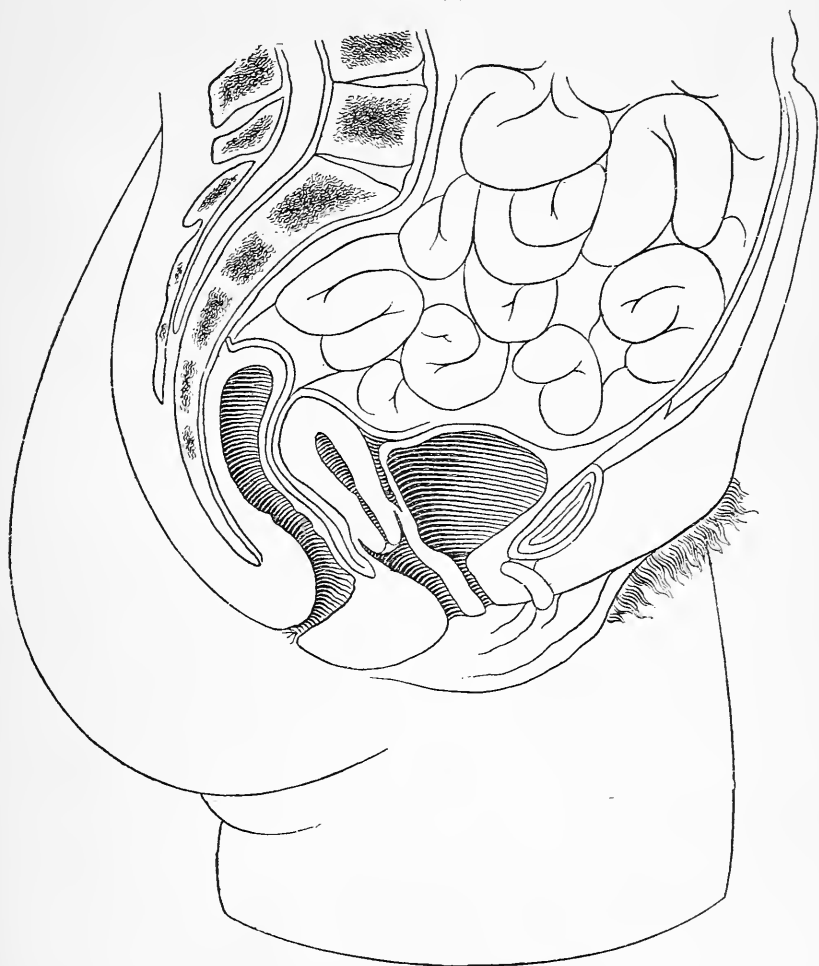
In retroflexion, which is usually complicated with version, the cervix points in the axis of the vagina, and the angle which the body makes with the cervix can be felt in the posterior cul-de-sac, and the body is easily made out through the vaginal walls (Fig. 53).

Lateral displacements. Latero-versions or flexions are not so easily recognized bimanually, as the broad ligaments prevent satisfactory palpation from the vagina. The passage of the probe is usually necessary for their satisfactory demonstration.

Downward displacements. By prolapsus uteri we understand that condition of things in which the uterus sinks in the pelvis and approaches the outlet of the vagina. Where it appears outside it is called procidentia. It will be easily seen that there may be all degrees of prolapse and procidentia, from the slightest sinking, to the complete extrusion of the uterus and vaginal walls with part of the bladder and rectum outside the vaginal orifice. The lesser degrees are not easily diagnosticated with the patient on the back, as the uterus falls away from the vaginal entrance. An unusual degree of mobility may sometimes be made out by asking the patient to strain as if at stool, when the uterus will be forced down beyond its normal position. A better way is to examine the patient when standing, by which method slighter degrees of mobility may be recognized. One less easily recognized form of prolapse is where the uterus, while maintaining its normal relation to the

vagina of moderate anteversion, sinks lower in the pelvis, a condition of things which is usually associated with a relaxed condition of the vaginal walls,

FIG. 54.



Retroversion and prolapse, first degree.

and occurs in debilitated women, and perhaps as often among the unmarried as among the married. Such a falling can occur, however, only within very

narrow limits. Usually prolapse presupposes some retroversion, and the uterus having fallen back into the axis of the vagina, sinks lower and lower (Fig. 54). Sundered and ruptured perineum is the most frequent predisposing cause of this form of prolapse.

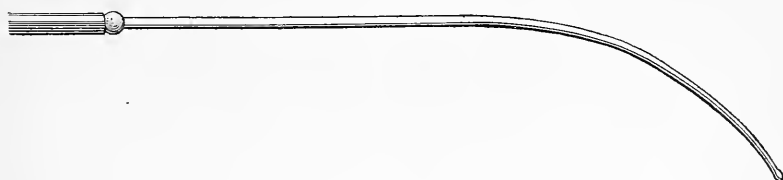
The difficulties which may be met with in making a bimanual examination, such as narrowness of vaginal entrance, thickness of abdominal parietes, and abnormal sensitiveness to pressure on the abdomen, causing firm contraction of the recti muscles, have been spoken of in a previous chapter, and the methods of overcoming them alluded to. Frequently, however, it is impossible to overcome them sufficiently to make a sure diagnosis of the position of the uterus by the bimanual examination alone, and it is necessary, in addition, to make use of the probe.

Probe. Inasmuch as the passage of the probe will also give valuable information as to the depth of the uterus and the calibre of the canal, it is wise, unless there are some special reasons to the contrary, such as recent cellulitis, suspicion of pregnancy, or fear of starting up uterine hemorrhage, to pass the probe in all cases. This, when carefully done, is not accompanied by any danger.

The patient should be placed in Sims's position, and the speculum introduced. It is usually necessary to depress the anterior vaginal wall in order to bring the cervix into view. The probe should be moderately flexible, preferably of pure silver. It should be given a curve corresponding to the supposed direction of the canal as deduced from the bimanual examination. For a uterus in the normal position the curve

should be about as in Fig. 55; for anteversion or flexion, as in Fig. 56; for retroversion the curve should be very slight, as in Fig. 57; and for retroflexion it should approximate more nearly the normal curve again.

FIG. 55.



Uterine probe. Normal curve.

FIG. 56.



Uterine probe. Anteversion.

FIG. 57.



Uterine probe. Retroversion.

Method of using probe. Taking the depressor, or the cotton-stick which is used as a depressor, in the left hand, the probe should be held in the right and gently passed into the external os. No force should be used, and, if the curve is right and no obstruction met with, it will pass easily through the internal os

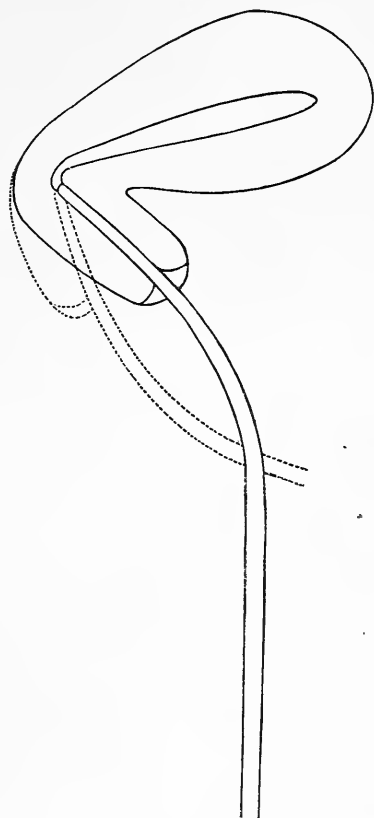
and bring up against the fundus. The resistance met with when it strikes the fundus is peculiar, being moderately firm and slightly elastic. If the probe fails to pass, and hitches at the internal os, which it is apt to do, it should be slightly rotated and the handle somewhat depressed, or carried backward toward the speculum. If these manœuvres fail, it should be withdrawn and the curve slightly changed. After considerable experience in passing the probe, the sense of touch in this particular direction becomes developed so that the cause of the obstruction can be pretty generally surmised, whether due to too much or too little curve, to catching on one of the rugæ, or bringing up against a constricted internal os. The beginner, however, must try changing the curve first in one direction and then in the other, in the hope that the difficulty may be overcome.

It sometimes happens that the beak of the speculum pushes the cervix forward so as to disturb its relation to the body and cause a flexion at the internal os. To avoid this the depressor should be removed and the speculum somewhat withdrawn, so as to allow the parts to assume their normal relation, when the probe will be found to pass readily.

In anteflexion of body and neck. In cases of anteflexion of body and neck, a difficulty is sometimes experienced in getting round the rather abrupt curve at the juncture of the two. This may be overcome in the following way: As far as the internal os the probe should be passed with the concavity of the curve backward, as if for a case of retroflexion (Fig. 58); it should then be reversed and carried into the

body in the usual way. The accompanying diagram (Fig. 59) will illustrate this manœuvre.

FIG. 58.

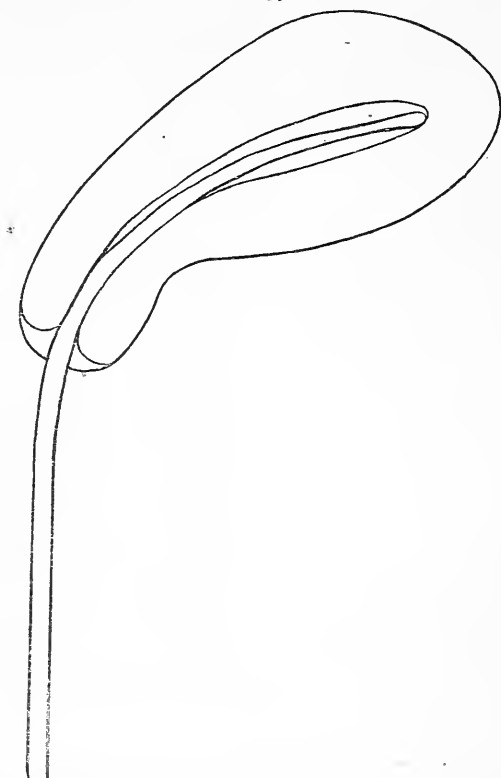


Method of passing probe in ante flexion of body and neck, No. 1.

Various difficulties. It occasionally happens that the rugæ of the cervix are so prominent, or the tissues of the cervix so flabby, that the point of the delicate probe catches in the folds of the mucous membrane, and cannot be passed through the internal os. This may be avoided by hooking a tenaculum into the anterior lip of the cervix and making moderately firm

traction, thus straightening out the cervix. In using the tenaculum it should be borne in mind that the cervix is quite tough and not very sensitive, and the point should be carried through the mucous membrane into the muscular tissue beneath, so as to insure a good hold.

FIG. 59.



Method of passing probe in ante flexion of body and neck, No. 2.

Or it may be necessary to substitute for the finer probe the larger Simpson's sound, the knob of which will not be caught in these obstructions. This, however, should not be tried until other attempts have failed.

Another difficulty with the passage of the probe may be from narrowing at the internal os, in which case steady firm pressure will sometimes overcome the resistance.

In the majority of cases, when the point of the probe passes the internal os, there will be a momentary twinge of pain. This is so common that it cannot be said to have necessarily any pathological significance, unless it is quite severe.

When the point has reached the fundus, the direction of the probe should be carefully noted, and at the same time the depth of the cavity measured, by grasping the probe with the forceps at the level of the external os, and withdrawing both carefully. The cervix should then be looked at, to see if any blood has appeared from the passage of the instrument, a fact which may be of significance in determining the existence of certain conditions of the lining membrane.

Treatment—general considerations. If we find some displacement of the uterus, the next question to be considered is that of treatment. While a firm believer in the value of local treatment, particularly that by pessaries, for uterine displacements, I would by no means advocate their use in all cases, nor undervalue the benefit to be derived from general measures. Every observer must have seen numerous cases where malpositions of the uterus have been found which give rise to absolutely no symptoms, and of whose existence the patients had not the slightest suspicion. Again, we constantly meet with cases where some faulty position of the uterus is manifestly due to a

general weakness of the muscles of the body, in which those which support the uterus share, where a course of tonic and hygienic treatment has alone served to restore tonicity to the muscles, and to correct the misplacement. Such cases are, however, in the minority, and it is my opinion that the larger number of displacements of the uterus need local treatment, and even where ultimate cure would result without, are more successfully and quickly relieved where it is employed.

It is not my purpose to go into the discussion of the general treatment applicable in these cases. It does not differ from that to be employed in other conditions where there is debility, whether from acute disease or inherited disposition to cachexia, or long-continued malnutrition.

The local treatment divides itself into the mechanical by means of pessaries, and the auxiliary measures which either prepare the way for the use of the pessary or aid its effective power. These will be considered in the order above mentioned.

Treatment by pessaries. The first consideration in a given case of misplacement is, Shall this be treated by pessary or not? The answer to this will depend upon various circumstances. If the displacement is a forward one, it is much more likely to be unaccompanied by symptoms than if it is backward, and a larger proportion of such malpositions can be left untreated. Unless there are bladder symptoms, or dysmenorrhœa, or increased size of the uterus, or pain evidently due to traction on the ligaments, an

anteversion, and sometimes an anteflexion, may be left to itself.

So, too, there are cases of retroversion which apparently give rise to no symptoms, and these cases may sometimes be left to Nature, or treated in a general way. The mere absence of symptoms does not, however, settle the whole question, for it must be considered whether the probable cause is temporary and has ceased to operate, and whether the chances are that, the cause being removed, the uterus will return to its natural position. If the woman is married, we should hesitate less than if she were unmarried, and among the poorer classes, who are obliged to work, pessaries are more generally necessary than with the well-to-do, who can spare themselves and have regular and appropriate treatment.

Objections to pessaries. There are certain objections to the use of pessaries which are constantly urged by physicians, which deserve notice here. It is a common occurrence to hear physicians declare that they do not believe in pessaries, and urge as reasons that they do not replace the uterus; that they cause abrasions; that they weaken the supports of the uterus; and that when once used they must always be worn. These objections arise either because the first attempts at using pessaries are not followed by the complete relief to symptoms which is expected, or from a mistaken idea of how much the pessary will accomplish.

In the first place, every pessary should be accurately fitted for the individual case. Careful measurements should be taken and peculiarities in the size and shape of the vagina and cervix should be con-

sidered, and the pessary shaped to meet the requirements in the special instance. It is a grave mistake to diagnosticate a displacement, for instance a retroversion, and then to be satisfied with trying a pessary of some well-known retroversion variety, of a small, medium, or large size, as the particular case seems to need. Again, it should always be borne in mind that the sole function of a pessary in all cases of malposition is to hold in place the uterus *after it has been replaced*. As regards backward deviations it is a mistake to suppose that the support will replace the organ; in fact, in most cases, if the pessary is introduced without previous reposition of the uterus it will only aggravate the existing malposition. Forward displacements and cases of prolapse of course need no special reposition before the support is introduced, as the organ is brought into position by the pessary.

The objection that pessaries weaken the supports of the uterus finds its justification in the fact that certain forms of pessaries depend for their efficacy upon the elasticity of the vaginal walls. These, in time, become weakened and a larger pessary is necessary to accomplish the same good. Meigs's elastic ring is an example of a pessary which acts upon this wrong principle. Other forms of support, such as the Hodge, which act upon the principle of the lever, or those which by their bulk fill up the natural calibre of the vagina and are prevented from coming out by the perineal body closing up the entrance, or in certain cases those with external attachments, are not open to this objection.

All has not been done when the pessary has been once adjusted and apparently fits well. It should be remembered that it is a foreign body, and as such should be carefully watched, removed at intervals, and cleansed, and not, as is so often the case, allowed to remain months and even years without attention.

The question whether pessaries cure displacements is one which has been a good deal debated, and about which a difference of opinion still exists. My own experience has led me to believe very firmly that many cases can be and are definitely cured, and the number of such cases will increase as greater skill is exercised in the choice, adjustment, care, and ultimate treatment of the pessary. Not a few cases of displacement recur from a too sudden removal of a support which has been worn for a long time. A method of gradually doing away with the necessity of wearing one will be described later on. (See page 196).

Reposition of the uterus. The treatment of a case of backward displacement of the uterus by a pessary begins with the reposition of the organ. As a rule, the bimanual examination will inform us whether the uterus is replaceable or so bound down by adhesions that it cannot be restored to its normal position. In the latter case special preparatory treatment, which will be described later, is applicable. (See page 217.)

If the uterus or vagina is sensitive to pressure, and in cases of nervous women who are coming under treatment for the first time, it is often wise to prepare for wearing a support, by hot-water injections taken night and morning for a week, and by a few mild

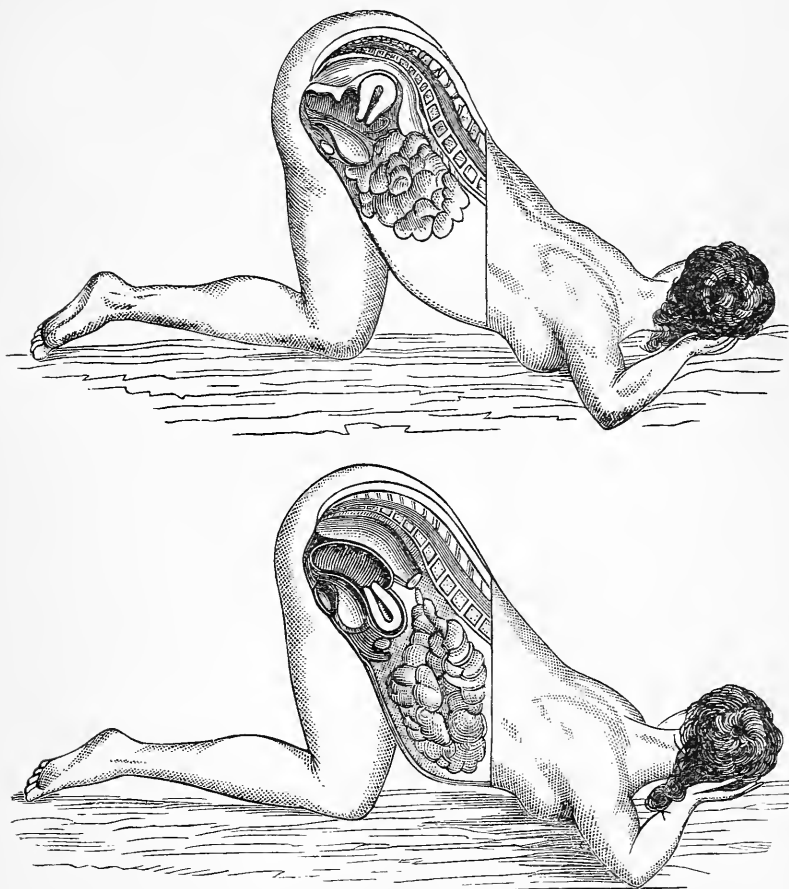
applications followed by the use of a cotton dressing for twenty-four hours. In this way the tolerance of the vagina to the presence of a foreign body can be judged of.

Bimanual method. There are several methods of replacing the retroverted or flexed uterus. The simplest is the bimanual method. This is applicable when the vagina is large, the uterus not sensitive, and the abdominal walls thin and relaxed. The fore-finger, or in case of a very large vagina the fore- and middle fingers, of the left hand are introduced into the vagina behind the cervix, with the patient lying on the back. The finger is then pushed as far up behind on the body as possible, and the fundus is carried well forward. At the same time the attempt is made with the hand over the abdomen to get behind the fundus and carry it still further forward. The finger in the vagina is then swept around in front of the cervix and it is pushed far back into the hollow of the sacrum. This manœuvre will often bring the uterus into good position.

Knee-chest position. Sometimes the action of gravity can be called to our aid by placing the patient in the knee-chest position and retracting the perineum. This allows air to enter the vagina, and the abdominal viscera to fall forward, and at the same time the uterus may rotate on its axis, and assume its normal position, a result which may be helped by pressure in the posterior cul-de-sac with the finger or cotton-stick. This position, which is an exceedingly trying one for the patient, is as follows: She is made to kneel upon the table close to

its lower end, and to bring the chest as flat upon the table as possible. This can be done by turning the head to one side, and spreading the arms out. The thighs should be perpendicular and the back sloped down regularly (Fig. 60).

FIG. 60.



The genu-pectoral position, showing its action in retroversion.

As the speculum is introduced and the perineum retracted, air fills the vagina and the pelvic contents

fall as far forward as possible. In this position a very effective tampon can be placed in cases of backward displacement with adhesions.

It is sometimes impossible to dislodge the fundus from behind the sacrum, or it may, according to some writers, be caught between the utero-sacral ligaments. This difficulty may be overcome by hooking a tenaculum into the anterior lip and drawing the uterus down. The finger behind pushes the fundus as far forward as possible, when, with a sudden motion, it is withdrawn and the cervix is pushed with the tenaculum into the hollow of the sacrum.

Where the vagina is small and the abdominal walls tense this method will often fail. It is sometimes well, especially with unmarried women, where the hymen is intact and the vagina narrow, to attempt this method by the rectum, or, if necessary, to give ether, and in that way gain sufficient relaxation to effect reduction.

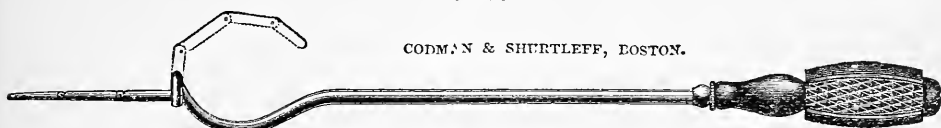
Repositors. Where the tolerance of the uterus to treatment has been well tested, and there is absolutely no inflammatory process in the neighborhood, a repositor may be used, if the mobility of the uterus has been clearly demonstrated beforehand. The sound is often recommended for this purpose, but there are repositors specially constructed which do less violence to the uterus and are safer. The best of these is Emmet's (Fig. 61).

The part which enters the uterus is composed of three short links, so jointed as to bend only in one direction. These are attached to an oblong plate, which is connected with the handle by a hinge. The

jointed stem is passed into the retroverted or flexed uterus, a half turn is then given to the handle to set the joints, and the plate is then pushed into the posterior cul-de-sac, thus carrying the fundus forward.

FIG. 61.

CODMAN & SHURTLEFF, BOSTON.

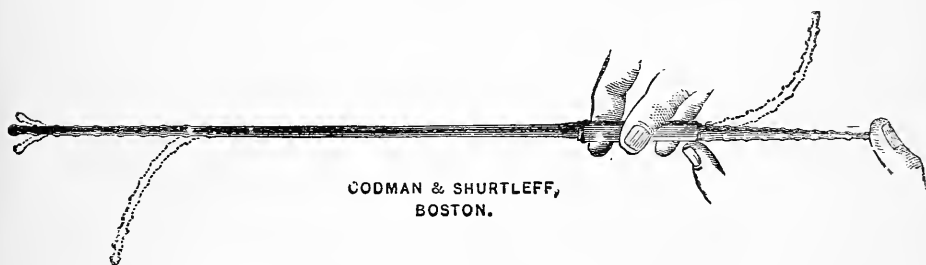


Emmet's repositior.

To prevent pulling the uterus backward as the repositior is withdrawn, it is best to push the cervix back with a cotton-stick during its removal.

An instrument called Jennison's sound (Fig. 62), which is essentially a spiral spring covered with

FIG. 62.

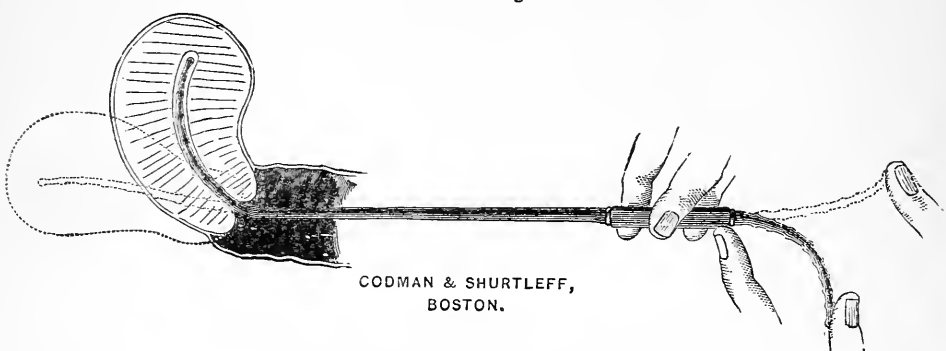
CODMAN & SHURTLEFF,
BOSTON.

Jennison's sound.

rubber, may be used as a repositior with comparative safety. It is so constructed that, on bending the shorter end in any given direction, the other end curves in the opposite way, and thus a slight malposition may be corrected (Fig. 63). The force which can be employed is not great enough to do any damage. It is also of use where the canal has an

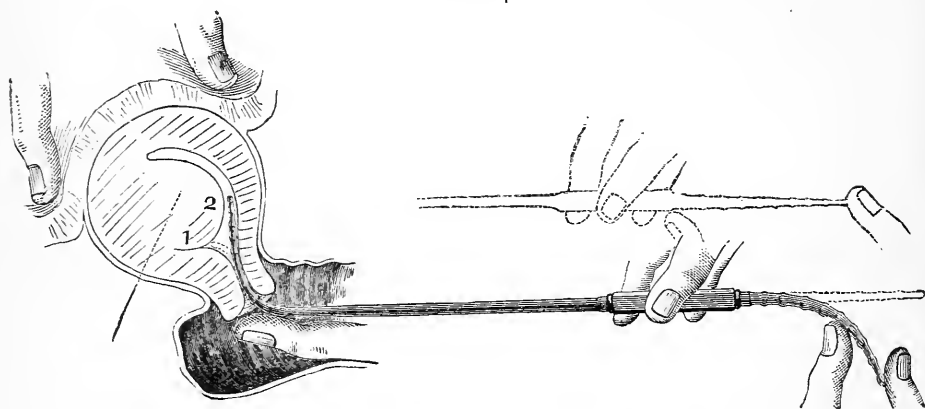
irregular curve—from the presence of a fibroid, for instance (Fig. 64).

FIG. 63.



Jennison's sound used as a repositor.

FIG. 64.



Jennison's sound used to determine the direction of the uterine canal.

An exceedingly good repositor is one devised by Dr. R. A. Kingman (Fig. 65), which combines the advantages of Emmet's and Jennison's. One end is jointed so as to easily enter the uterine canal, and the other end, being connected by a solid rod of steel which transmits the power from one rack and pinion

to another exactly similar at the uterine end, can raise the uterus without too much violence to the interior of the organ.

FIG. 65.



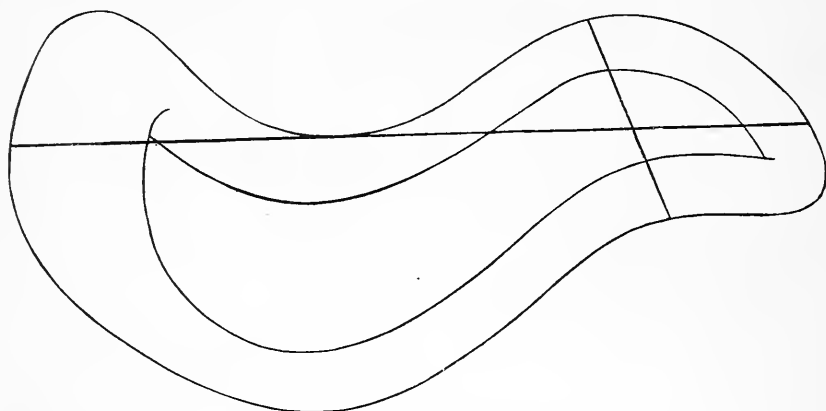
Where there is doubt as to the presence of adhesions, or the sensitiveness of the uterus precludes resorting to any of the preceding measures, a method of slow reposition by packing the vagina is of the greatest possible value. This method will be fully described when discussing the treatment of malpositions with adhesions.

Measuring for a support. Having replaced the uterus, we now proceed to measure for a support. For backward displacements, in the majority of cases, a pessary on the principle of a Hodge will be the most useful. There are three factors to be considered in choosing the pessary to be used: the length, the width, and the curve.

Length. The length of the pessary is taken across from the upper to the lower end without following the curve (Fig. 66). It represents the length of the vagina, and is measured with any straight instrument, as, for instance, a cotton-stick. With the patient in

Sims's position, the posterior cul-de-sac is exposed with Sims's speculum, and the point where the loose vaginal wall loses itself on the smooth cervix is noted. This is the junction of vagina and cervix, and in a case of prolapse or of retroversion is the point where the upper bar of the pessary will rest. If the end of

FIG. 66.

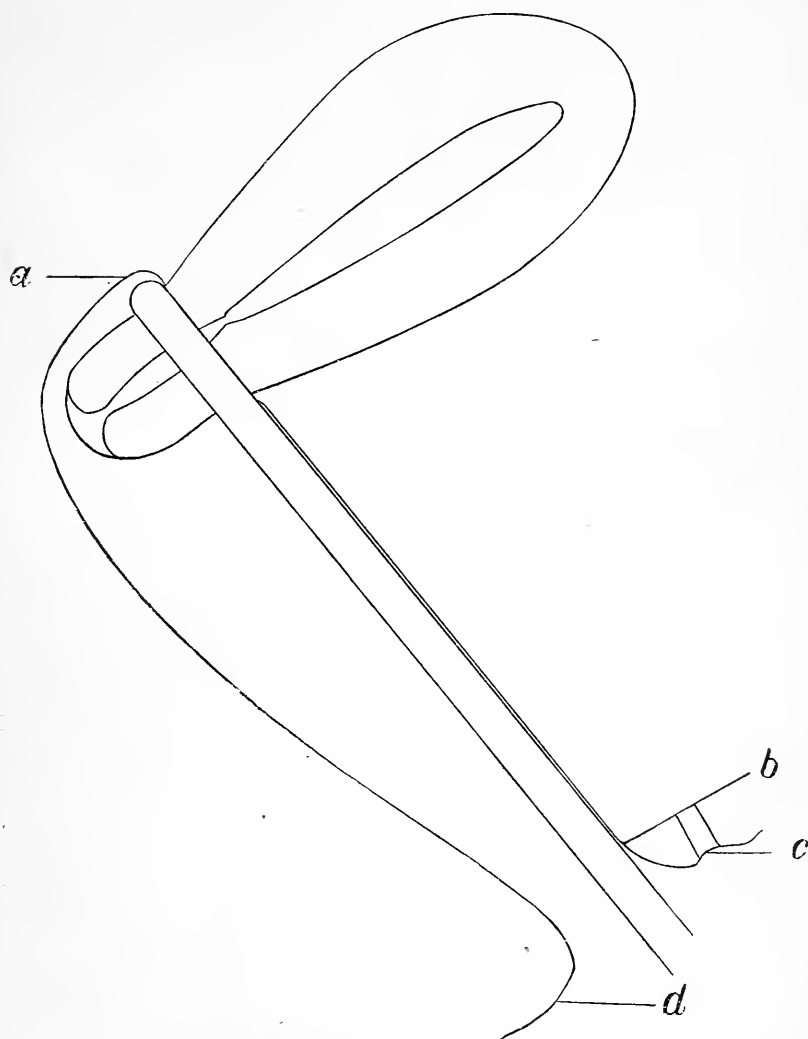


Length and width of pessary.

the cotton-stick is placed at that angle, the distance is measured on it to a point on the anterior vaginal wall about an inch back from the meatus urinarius (Fig. 67). This comes usually just inside the hymen or its remains, and in the normal condition of the vulvar orifice insures the pessary being completely inside the vagina. This point is also opposite the thickest portion of the perineal body, and the end of the pessary will, therefore, come where it will be firmly grasped by the strong muscular structure of the perineum and held in position. The distance between these two points being marked in the way

indicated on the cotton-stick, it is measured off, and we have the length of our pessary.

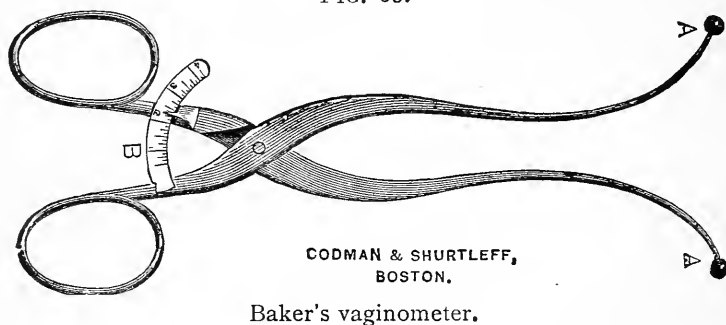
FIG. 67.



Measuring for retroversion and prolapse. *a.* Junction of posterior vaginal wall and cervix. *b.* Lower point of measurement. *c.* Meatus urinarius. *d.* Perineal body.

Width. The support is so moulded that its width in different parts adapts itself to the varying width of the vagina, being largest at the middle and upper parts where the vagina is distensible, and narrowest at the lower part, where it passes under the arch of the pubes. (See Fig. 66.) It is at this point that the width is of importance, as it is here that it is liable to cut in if too wide, or to slip down too far if too narrow. The width may be roughly estimated by passing the finger from one side to the other, and after considerable practice a fair degree of accuracy may be attained. A better way is with the use of the vaginometer devised by Dr. Baker (Fig. 68).

FIG. 68.



The knobbed points are separated just so far as to allow of their slipping easily through the narrowest portion of the vagina, and while *in situ* the distance between them is read off on the graduated scale near the handle.

Pessaries, which are manufactured in large quantities for the trade, are graded in size on the principle that some fixed relation exists between the length and width of the vagina. Herein lies much

of their inutility, for the variations, both natural and accidental, are so many, that each vagina must be regarded as peculiar, and its special measurements followed. We find long narrow vaginæ and short wide ones, and parturition and disease contribute their share toward still further differences. The only fair and satisfactory way of testing the value of pessaries in the treatment of displacements of the uterus is to treat each vagina as a special organ needing its own special support.

The upper part of the vagina is so distensible that accurate measurements are not possible, nor are they necessary. The pessary is gradually widened from the narrowest point, and the degree to which this is carried is determined by our knowledge of the shape of the vagina, as found out by the bimanual examination.

Curve. The third element is the curve. The amount of this depends upon the object to be attained. If it is merely to raise the uterus, as in prolapse, the curve need be very slight or none at all. If, in addition to raising, we also wish to carry the fundus forward, as is the case in retroversion, it is necessary to give the pessary a more decided curve. This will vary according to the degree of version present, but should be gradual and even in extreme degrees of version, when unaccompanied by flexion, should not attain a right angle.

The curve should be regular and gradual, all angles being avoided. The original Hodge pessary had but one curve, and the lower end was rather broad, and to a certain extent was held in place by resting be-

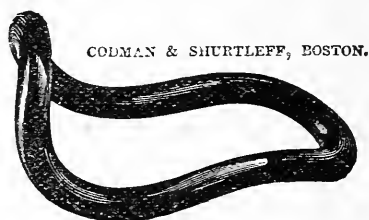
hind the pubic bone (Fig. 69). Later modifications give a second curve at the lower end, and have lengthened and narrowed it to a point (Fig. 70). By this change pressure on the urethra is avoided, and the longer lower arm of the pessary being grasped firmly by the perineal body, it is made much more effectual in holding the uterus.

FIG. 69.



Hodge pessary.

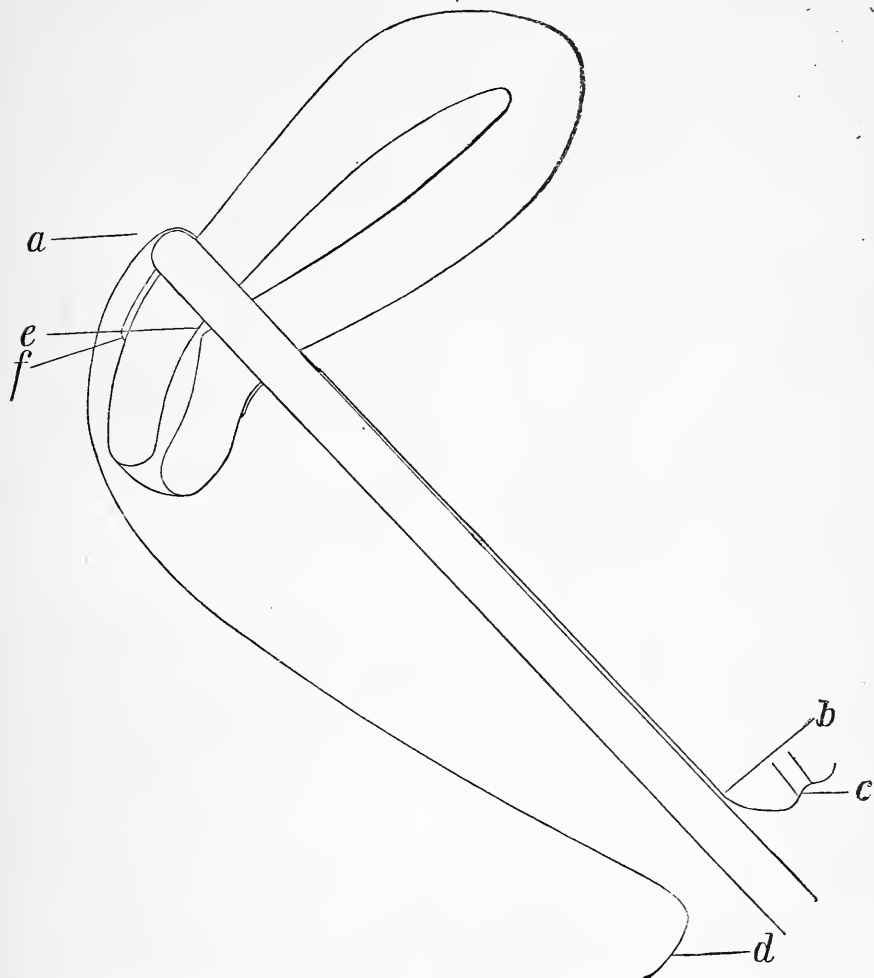
FIG. 70.

Albert Smith's modification of
Hodge pessary.

Measurement for retroflexion. In cases of prolapse and retroversion we have essentially the same conditions as regards the uterus, hence our measurements will be the same, and the pessaries will differ only in the amount of curve. In retroflexion, however, we have a new factor to consider. Here the body of the uterus is bent backward, forming an angle with the cervix about the level of the internal os. It is, therefore, necessary in adjusting a pessary for this form of misplacement, to bring the upper portion of the support above the point of flexion. If we measure as before, the upper bar would come to lie in the angle, and the flexion would be only aggravated. The posterior vaginal wall must, therefore, be pushed up as

high as possible on the body of the uterus, which, owing to the laxity of the vaginal walls, can usually

FIG. 71.

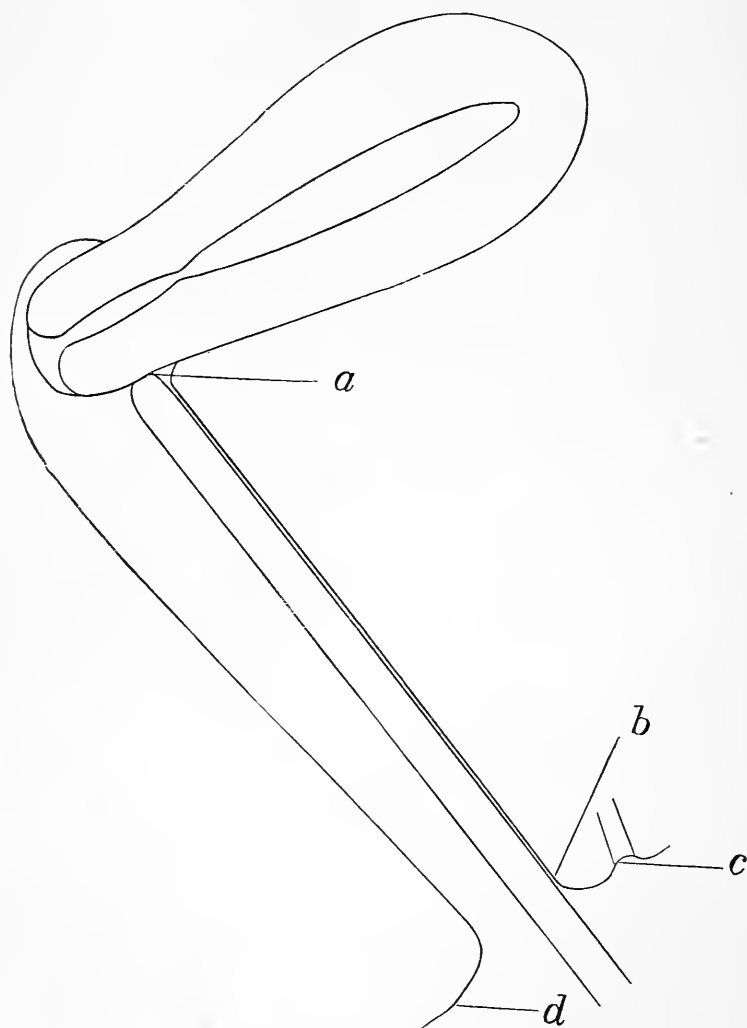


Measuring for retroflexion. *a*. Point of cotton-stick pushed as high as possible into the posterior cul-de-sac. *b*. Lower point of measurement. *c*. Meatus urinarius. *d*. Perineal body. *e*. Os internum. *f*. Junction of posterior vaginal wall and cervix.

be done sufficient to get above the internal os (Fig. 71). The lower point of measurement is the same as

has been spoken of, and the width is taken in the usual way. The curve is greater, so as to get more leverage, approaching or even reaching a right angle,

FIG. 72.



Measuring for ante-displacements. *a*. Junction of anterior vaginal wall and cervix. *b*. Lower point of measurement. *c*. Meatus urinarius. *d*. Perineal body.

and the relative length of the posterior arm as compared with the rest of the pessary is greater.

Measurements for anterior displacements. Pessaries for anterior displacements, which depend for their efficacy in raising the uterus upon pressure in the anterior cul-de-sac, are measured for by taking the distance from the junction of vagina and cervix, along the anterior wall to the point on the urethra before mentioned (Fig. 72). Other measurements will depend upon the form of support used, and as there is a great variety, and the principles of application differ, it would be useless to point them out here. Most of them would naturally suggest themselves from the shape of the pessary.

FIG. 73.



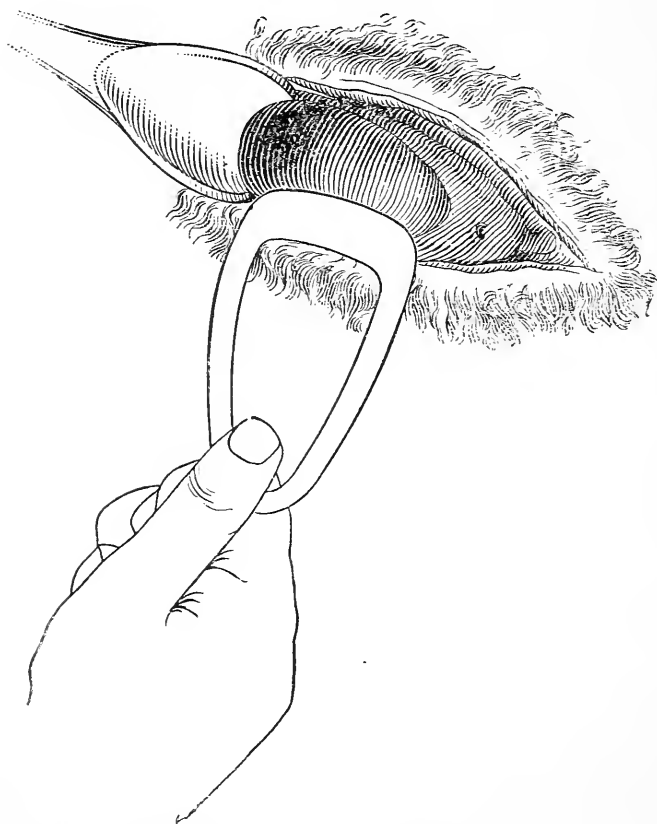
Block-tin ring.

Fitting the pessary. The measurements having been taken, the next step is to fit the support. It may happen that a pessary of just the required shape and size is found, in which case it can be immediately adjusted. A safer way, however, is to select a block-tin ring (Fig. 73), which can be procured of almost any

suitable size at the instrument-maker's, and mould a pessary to suit the requirements. The ring should be of sufficient calibre not to be bent out of shape on introduction or from the muscular force of the vagina, and yet not so stiff that it cannot be moulded with facility.

Introduction of pessary. The length and width of the model should correspond with our measurements,

FIG. 74.

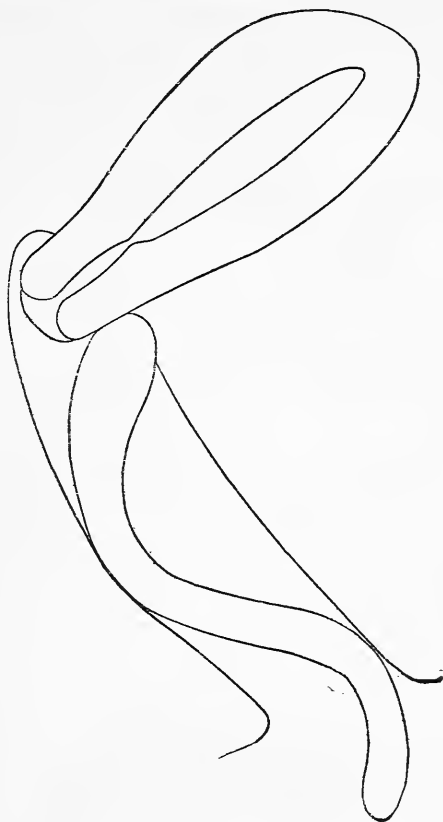


Introduction of pessary. First stage.

and the appropriate curve having been given, it should then be introduced. The best position for the patient

to assume for this purpose is on the side. The Sims's speculum should be introduced and firm traction made on the perineum. The pessary should then be taken in the right hand and, with the concave side downward, introduced into the entrance of the vagina parallel with the long axis of the vulva (Fig. 74). As it is slowly introduced, the speculum should be with-

FIG. 75.

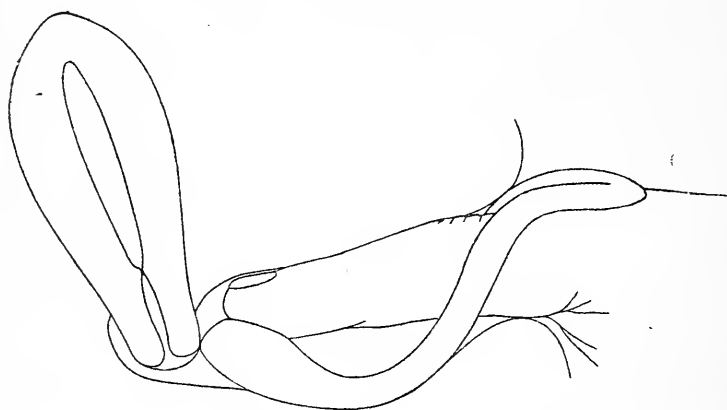


Introduction of pessary. Second step.

drawn under constant traction, and just as it slips beneath the arch of the pubes the pessary should with

a quick motion be passed by and given a half turn, so as to bring the convexity posterior. The object of this manœuvre is to give the greatest expansion of the narrow entrance at the moment of introduction, and as in a small vagina there is not room for both speculum and pessary, one is withdrawn just as the other is entered. It is a little manipulation which requires some practice to execute skilfully. If we are dealing with a pessary for a backward displacement, it is now lying two-thirds within the vagina, in the right position; except that the upper bar is in

FIG. 76.



Introduction of pessary. Third step.

the anterior cul-de-sac, a position which it naturally takes (Fig. 75). The forefinger of the right hand is now carried in behind the pessary and hooked over the upper part, and it is then carried backward behind the cervix into the posterior cul-de-sac (Fig. 76). To effect this change of position it is sometimes

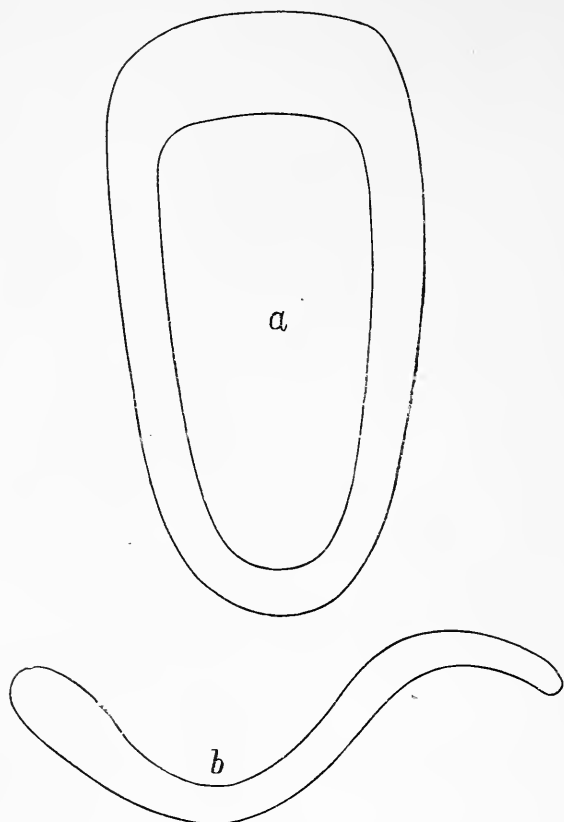
necessary to draw the pessary slightly downward with the left hand, to disengage it from the cervix.

The patient should now be placed in the dorsal position, and the fitness of the pessary tested by passing the left forefinger between it and the vagina on both sides. There should be plenty of room for it to pass freely; if not, there is danger of its cutting in. If the perineum is intact, the lower end should be hidden from sight by the hymen or its remains, and, on requesting the patient to strain down, it should not be forced down so as to protrude.

She should now be instructed to wear the model for twenty-four or at most forty-eight hours, and then to report again. If it causes marked discomfort, she is to come as soon as possible, or to remove it herself in case the physician cannot be found. It is better, if possible, that she should wear it until she can be examined, as the difficulty with the pessary can then be more surely found out. If it is comfortably worn, and is holding the uterus in good position, it may be left another week and then examined again. If there is, on bimanual examination, any doubt as to whether the uterus is still held in its normal position, that fact should be tested by means of the probe.

If all is found right, a permanent pessary should be made from the model. This can be done by sending another block ring of the same size and shape as the first to the instrument-maker, or making a drawing of the pessary in its two aspects when laid flat and on its side, so as to give length, and width, and curve, from which a permanent one in hard rubber can be made (Fig. 77).

FIG. 77.



Sketch of pessary to send to instrument-maker.
a. Front view. *b.* Side view.

Care of the support. The after-care of the pessary resolves itself into one or two hot-water douches a day, according to the amount of leucorrhœa or the presence of chronic inflammatory processes in the uterus, and the removal and cleansing of the pessary after each sickness. This should be the invariable rule at first, or until the tolerance of the individual to the presence of the support is determined.

In many patients there is a tendency to the deposi-

tion of salts on the pessary, and in such cases it should be removed and cleansed every month. So, too, if there is a tendency for the secretions to collect and coat the support. If, however, we find that it keeps clean, and is not uncomfortable, it may be left for two months, or, in exceptional cases, three. It is better, however, to keep the patient under observation, so as to be prepared to modify the support in case it is failing to do its work, or is gradually becoming unnecessary. It is a common occurrence for patients, especially those of a nervous organization, to come of their own accord after menstruation is over, and report that the pessary is not comfortable. Sometimes it is coated with secretions, and sometimes not. At any rate, removing, cleansing, and replacing it will give immediate relief. My idea is, that as the support should move freely and easily with every inspiration, following the movements of the uterus, if from being somewhat coated from the menstruation, or being slightly displaced by the increased weight of the organ during that process, it fails to slip easily, discomfort will ensue.

The best time for removing it is two or three days after the cessation of the menses. Before removing the support the position of the uterus should be noted, to see if the pessary is doing all it should. If the position cannot be made out bimanually, the probe may be carefully passed.

For the removal of a retroversion or flexion pessary, it is wisest to place the patient on her side, as the traction on it if the patient is in the dorsal position might draw the uterus into its faulty position again.

Traction is made downward and forward until the upper arm is free from the cervix, when it is given a half turn and withdrawn.

Patients who are obliged to be away for any length of time where the services of a good physician cannot be procured, may be taught to remove and replace the simpler forms of pessaries themselves. This is true of those for prolapse and retroversion, but it is only exceptionally that a patient has been able to do this with a retroflexion pessary or those for anterior displacements, which are usually somewhat complicated.

Patients usually ask the physician how long they will have to wear the support, or if they will have to wear one always. The question of how long, cannot, of course, be answered with any degree of definiteness; the other question can generally be answered in the negative.

The essential factor in most displacements is a weakening of the supports of the uterus, both the ligaments and the muscular structures, vagina and perineum. If the pessary is fitted on the correct principle of supporting the uterus without weakening these structures by stretching, they will naturally recover tone and gradually resume their function. We frequently find in cases of relaxed vagina from debility, that after a time the pessary which we fitted is hugged too tight by the firmer vaginal walls, and must be changed for a smaller one. This is a hint to us how to proceed to get rid of the support altogether.

As the general health improves, an indication of

which will be increased tonicity of the vaginal walls and uterus, we can assume that the ligaments proper are also growing stronger. A pessary, therefore, should be substituted which is slightly shorter and narrower than the one which has been worn, so as to bring a little more work on the natural supports of the uterus. This may be worn a few months, and then replaced by a still smaller one, and after two or three such changes it may be dispensed with altogether. In this way the uterus gradually becomes accustomed to depending upon its own natural supports. If the pessary is taken away at once, the malposition is likely to recur.

It is also important to remember that many cases of displacement are dependent upon, or complicated with, inflammatory or other conditions of the uterus which need treatment. All has not been done when the pessary has been satisfactorily adjusted. A support, for instance, may hold a heavy uterus in good position, but in addition it is often wise and necessary to carry out the appropriate treatment for reducing the size of the organ. Until that is done a permanent cure cannot be hoped for.

Having thus far discussed the general rules for the measurement, adjustment, and after-care of the pessary, we come now to a more detailed consideration of the various forms of displacement and their treatment.

It is by no means my purpose to describe the numerous forms of pessaries which have been devised for the various malpositions, nor, if the reader has mastered the principles of the mechanical treatment

which have been laid down, is it necessary. A few simple forms will answer in nine-tenths of the cases, and I shall merely indicate those which have been most useful in my hands. Exceptional cases need special forms, but an ordinary amount of ingenuity will, with practice, be able to suggest and carry out the necessary modifications.

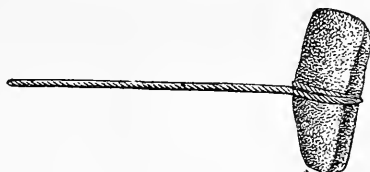
Anteversion. The first to be mentioned is anteversion. It is comparatively rare that this malposition in itself requires treatment by mechanical means. As it is only an exaggerated degree of what is the normal position of the uterus, it may, and does often, occur without symptoms. When these are present there are pain in the back, probably due to traction on the utero-sacral ligaments, a sense of weight and dragging, and frequent and possibly painful micturition, due to pressure on the bladder. This last is the most characteristic symptom, and when present points more clearly to the necessity of raising the uterus than any other. Dysmenorrhœa may also be a symptom.

Where these evidences of pelvic trouble are present and no other abnormal condition is found to account for them, we may conclude the necessity of some mechanical support to the uterus.

Temporary cotton support. Before adjusting a pessary it is well to test the tolerance of the vagina to its presence, and at the same time to gain additional evidence as to what effect it will have when placed, by making use of a temporary cotton support. It is my custom to insert into the anterior cul-de-sac two cotton dressings, rolled up into small rolls, and held

in place by a third (Fig. 78). These are placed transversely across the vagina, and have strings attached by which they may be withdrawn. The patient is instructed to wear them for forty-eight hours, and then to remove them and take a hot-water douche. She should be warned that they will cause some watery discharge, which will probably necessitate the use of a napkin. She is to make no change in her

FIG. 78.



Cotton dressings rolled up.

customary occupations, and is to note carefully any effect on the symptoms while wearing the dressings. Usually, even this slight support will afford some relief, and will confirm us in our opinion that a permanent pessary will be of marked benefit.

Graily Hewitt pessary. The two forms of anteversion pessary which have answered well in the majority of cases are the Graily Hewitt cradle pessary and Thomas's anteversion. The first of these (Fig. 79) is composed of two arms of equal length, one of which lies along the anterior vaginal wall, the other encircles the cervix, and the angle of junction presses upward in the anterior cul-de-sac. The length of the arm should correspond to the distance from the junction of cervix and vagina, to the point one-half inch back from the meatus urinarius. It is a pessary

that has a good deal of lifting power, and is especially useful in the more pronounced grades of anteversion, particularly in women who have had children. As it is rather difficult to introduce and to remove, it is not so well adapted to virgins or women with narrow vaginae. The only modifications which in my expe-

FIG. 79.

CODMAN & SHURTLEFF,
BOSTON.



Graily Hewitt cradle pessary.

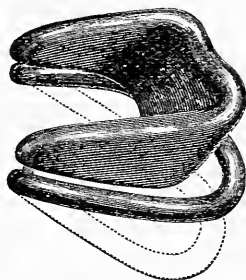
rience it has been necessary to make, are a narrowing of the anterior arm where the arch of the pubes is narrow, and occasionally a straightening of the curve of the posterior arm, if it is found to press too much into the rectum.

The method of introduction is with Sims's speculum in position to make firm traction on the perineum, and to insert one arm of the pessary as far as it will easily go, with the concavity of the whole pessary downward. The speculum is then slowly withdrawn under steady traction, and at the moment of exit the angle of junction of the two arms is quickly passed by the narrow entrance and a half turn given it, so as to bring the upper part into the anterior cul-de-sac. The posterior arm is then felt encircling the cervix.

It should not fit so tightly but that the finger can be easily passed between it and the vaginal wall.

Thomas's anteversion pessary. Thomas's anteversion pessary (Fig. 80) is easier of introduction, and, therefore, better adapted to unmarried women. It is not so effective a pessary as the Graily Hewitt, but answers very well in cases of moderate anteversion. The variety with the open ring is the better, as the closed ring is apt to constrict the cervix. An objec-

FIG. 80.
CODMAN & SHURTLEFF,
BOSTON.



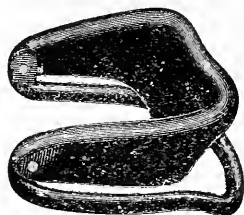
Thomas's anteversion pessary.

tion as it is usually constructed is that the posterior angles where the joints of the movable arms are attached, are sharp and liable to cut into the posterior vaginal walls. This has been avoided by having the joints modified in accordance with a suggestion of Dr. W. H. Baker, by which they are sunk to a level with the rest of the pessary, and a rounded end is secured. It is introduced with the movable arm extended, and after the thicker part of the ring is in position in the anterior cul-de-sac, the arm is flexed to lie against the anterior wall. Dr. Baker has further modified it by slightly curving the movable arm, so

as to gain some power, and to impinge less directly on the vaginal wall (Fig. 81).

The pessary is removed by extending the arm, and drawing it gently out, giving it a half turn as it passes the narrow orifice.

FIG. 81.



CODMAN & SHURTLEFF,
BOSTON.

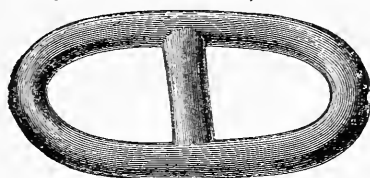
Thomas's anteversion pessary modified by Dr. Baker.

Chadwick pessary. Anteversion is often a result of debility, which is shown by a relaxation of the uterine ligaments and vagina. The uterus sinks lower in the pelvis without changing materially its relation to the axis of the vagina. This might very well be considered a form of prolapse, and its treatment is by raising the organ as a whole to a higher level. The pessary which I have found most useful for this purpose is one which is also applicable to many cases of beginning prolapse with slight retroversion. It is of a form suggested by Dr. J. R. Chadwick, and is a flat oval ring, of three sizes, with a bar across the middle, and may be either flexible or stiff (Fig. 82). The flexible form will be preferable in the majority of cases, as it raises the uterus equally well, and is easier of introduction and removal. The upper end passes easily and naturally into the posterior cul-de-sac; the

bar lies in front of the cervix, and the lower end reaches to just within the entrance of the vagina. The measurement to be taken for the length is the one described as for prolapse, and the width can be easily modified to suit the given case. Usually with the flexible variety, as sold in the shops, it is not necessary to make any change. Its great advantages

FIG. 82.

CODMAN & SHURTLEFF, DOSTO.



Chadwick pessary.

are the comfort with which it is worn, and the fact that the patient herself can remove and replace it without any difficulty. As it is introduced into the vagina it naturally falls into its proper position, and as it is covered with soft rubber, and more easily becomes foul than some other varieties, it is better for being looked after oftener than once a month. It is especially good where the patient is travelling, or where she cannot see the physician, as she can take care of it herself, and as it is so flexible it will not cause abrasions.

Anteflexion. In cases of anteflexion of the body, or of both body and neck, we use the same kinds of pessaries as for anteversion. The same rules of measurement will apply, the only difference being that in a case of anteflexion we may sometimes slightly ex-

ceed the length of the anterior vaginal wall in our pessary, so as to get more power.

When the antelexion is confined to the neck, it is, as a rule, the result of a fault of development, and is not to be remedied by a pessary. Its symptoms, the chief of which are dysmenorrhœa and sterility, are to be relieved by straightening the canal by an operation, or in rare cases by the introduction of a stem pessary.

Retro-deviations. Backward displacements constitute by far the most numerous class for which we employ pessaries. The methods of reducing the malposition and of taking measurements for the support have been described. For convenience' sake the cases of retroversion have been divided into three degrees, from the slight first degree where the whole organ lies in the axis of the vagina, to the third degree where it points toward the hollow of the sacrum and the cervix is up behind the pubic arch.

The Hodge pessary. The one form of pessary which, better than all others, answers for these cases, is the Hodge lever pessary. The curve is modified to suit the degree of displacement, being greater where the retroversion is more marked. There have been modifications made of late years to meet certain conditions, which have added to the applicability of this form of pessary. There are certain cases where either the posterior cul-de-sac is rather shallow, so that the pressure is greater than usual and there is a tendency to abrasions, or there is unusual sensitiveness of the body, or there is prolapse of one or both ovaries, which are sensitive to pressure. In all these cases a

broader surface for the upper arm is desirable, and this is secured by thickening that portion which goes into the posterior cul-de-sac to form a bulb. This is of great advantage in the cases spoken of. The lower end may be narrowed and drawn out to a point, so as to gain power, and at the same time avoid pressure on the urethra (Fig. 83). Where there is a sensitive prolapsed ovary of one side, it is sometimes necessary to prevent pressure on it by depressing the corresponding side of the pessary, thus making it asymmetrical.

FIG. 83.



CODMAN & SHURTLEFF,
BOSTON.

Thomas's bulb pessary with Albert Smith's modification.

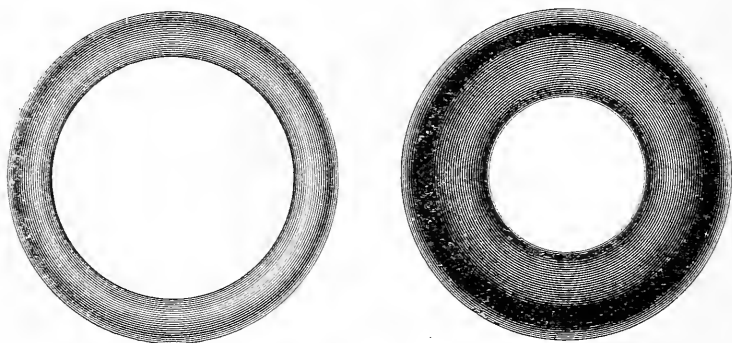
Mild cases of retroversion may be held in place after reduction, by the Chadwick pessary, described above.

The essential modifications in cases of retroflexion are a greater length of the pessary as a whole, so that it will come up higher on the body of the uterus, and a longer and greater curve. The bulb pessaries are of especial value here. There are cases of retroflexion occasionally met with where a vaginal pessary will not keep the organ in position. In spite

of every effort the body falls over the top of the support, and the malposition is only aggravated. In some of these cases an intra-uterine stem is indicated, the rules for the use of which will be considered later. Of late years the Alexander operation of shortening the round ligaments has been recommended for these inveterate cases, and the results justify its recommendation after the impossibility of wearing a pessary has been demonstrated.

Prolapse. In cases of simple prolapse, the ordinary Hodge pessary with a slight curve, or the Chadwick pessary, are the ones which can be used to the best advantage. Their application does not differ

FIG. 84.

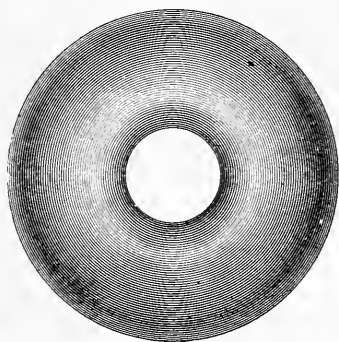


Meigs's elastic rings.

from that in retroversion and flexion. There is a class of cases, however, where the prolapse of the uterus is secondary to a prolapse of the vaginal wall. Here the problem assumes a somewhat different aspect, and its treatment will be considered when speaking of the different forms of prolapse of the vagina.

Procidentia. When the uterus has become prolapsed to such an extent that it protrudes outside the vagina, it is called procidentia. This is usually associated with rupture of the perineum and consequent rectocele and cystocele. Where it is possible, the treatment for this form of displacement should be operative. Where an operation is refused, or the advanced age or debility of the patient contra-indicates it, something may be done with pessaries at least to make the patient more comfortable. Sometimes there is enough of a perineal body left to retain a pessary within the vagina, provided it is large enough to distend the canal, and to resist displacement from its

FIG. 85.

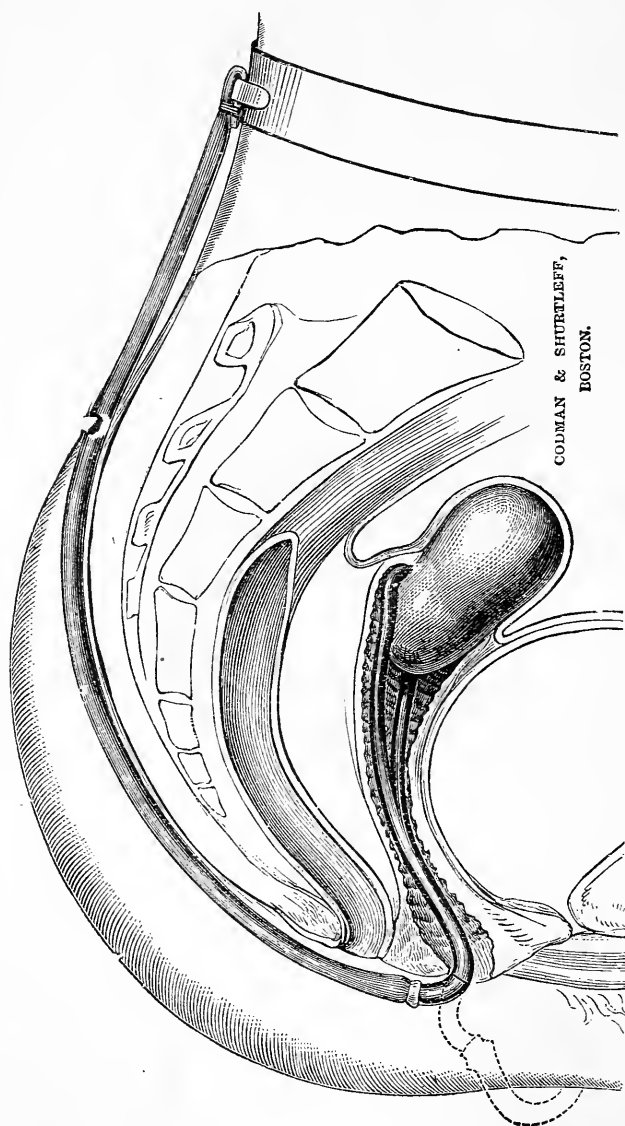


Inflated rubber pessary.

size. Pessaries which are occasionally useful in this way are the thick, elastic Meigs's rings (Fig. 84), which distend the upper part of the vagina and take a certain amount of support behind the pubic arch ; and the inflated rubber pessary, which also completely fills the vagina (Fig. 85). Very often, however, no intra-vaginal support will be retained, and some form

of pessary with external support may be tried. Cutter's pessary (Fig. 86) may serve as an example of

FIG. 86.

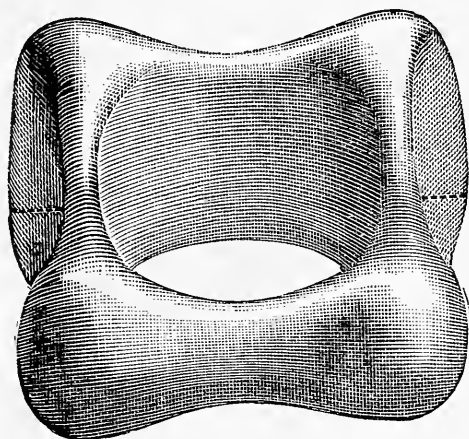


Cutter's pessary.

this class, all of which consist essentially of a bulb or cup supported by a vaginal stem, which comes outside the vagina, and is attached by cords to a band around the waist. These supports need the most constant attention, and, even with the greatest care, are very uncomfortable and liable to cause abrasions of the vaginal walls.

Latero-displacements. Latero-versions or flexions are, as a rule, not amenable to treatment by pessaries.

FIG. 87.



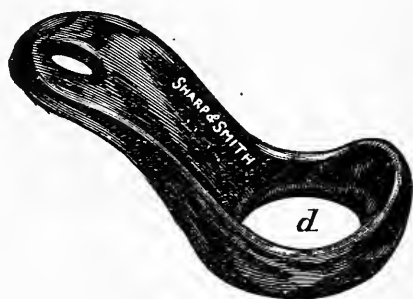
COLMAN & SHURTLEFF, BOSTON.

Hoffman's pessary.

Associated, as they usually are, with some inflammatory process in the appendages or peritoneal covering, their rectification depends upon the absorption of the products of inflammation, which may sometimes be brought about or assisted by applications of iodine and internal massage. Lately galvanism has been recommended to promote absorption of inflammatory products, and good results have been reported. I

have occasionally found that there was some relief to pain from the use of a Hoffman pessary, which is a small inflated rubber pessary, so shaped as accurately to fit the cervix and vaginal cul-de-sac (Fig. 87). The benefit is probably from the slight support it gives to the uterus, thus preventing the organ dragging on the sensitive ligaments. Sometimes a Fowler pessary (Fig. 88), a hard rubber support which is, to a certain extent, moulded after the shape of the moderately distended vagina, will serve an equally good purpose.

FIG. 88.

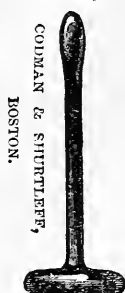


Fowler's pessary.

Intra-uterine pessaries. Intra-uterine pessaries are, as a rule, to be avoided. There are, to be sure, careful practitioners who advocate their use in cases of flexion, both ante and retro, and who claim that they are not more dangerous than other forms. It is a fact, however, that their employment is gradually becoming restricted to a few classes of cases, and this is undoubtedly the result of the growing conviction that any foreign body in the uterus is a dangerous thing as a possible source of serious inflammation.

In retroflexion. Occasionally we meet with a case of retroflexion of a flabby uterus, where the pessary fails to hold the body forward. It is pushed up as a whole and the body still falls over the top of the support. In such a case an intra-uterine stem may be carefully tried. The depth of the uterus should be measured, and a stem constructed, preferably of hard rubber, one-half of an inch shorter than the depth of the cavity. The stem should not be more than from an eighth to a sixth of an inch in diameter, and should have a flat disc at its lower end, which is perforated to allow the secretions to escape (Fig. 89). The

FIG. 89.



Intra-uterine stem.

uterus is to be replaced as much as possible by one of the methods previously described, the pessary then grasped with the forceps and introduced gradually, at the same time making traction with the tenaculum hooked into the anterior lip, to straighten the canal and steady the uterus.

If the vagina is firm, and the uterus well replaced, the stem may retain its position from the pressure of the disc against the posterior vaginal wall. Very often, however, the flabby condition of the uterus,

which necessitates the use of a stem, is associated with a like condition of the vagina, and the stem will not hold in place. In such a case a simple Hodge prolapse pessary may be fitted with a cup to receive the end of the stem.

Such a pessary should be watched very carefully, removed at the first indication of pain, taken out and cleansed, and carefully re-introduced after each menstrual period; and the patient should be under constant observation. They do not usually interfere with menstruation, and cases have been known of pregnancy occurring while they were *in situ*. In such cases they may be allowed to remain for two or three months, and then carefully removed.

In amenorrhœa. The other condition for which an intra-uterine stem may, with advantage, be used, is that of faulty development of the uterus associated with amenorrhœa. In these cases the uterus is usually undersized, or, if of normal length, its walls are thin, and the cervix long and conical. There is probably in some of these cases a persistence to a greater or less degree of the relation of the size of cervix to uterus which prevails during foetal and infantile life, viz., greater length of cervix and less of body.

The presence of an intra-uterine stem will often stimulate the growth of the uterus and bring on menstruation, and a galvanic stem is the one to be preferred. The best form is to have the stem divided lengthwise into two halves, copper and zinc. This should be cleansed every month, as the slight gal-

vanic action of the pessary causes a deposition of salts on the zinc side.

Pessaries where perineal body is wanting. We are frequently confronted with the problem of fitting a pessary in a case where the natural support afforded by the perineal body is wanting. The natural course of treatment would be to restore the perineum by an operation, but this is sometimes impossible or inadvisable, owing to the circumstances of the patient. In such cases we must do the best we can with the forces at our command. The elasticity of the vagina is a factor which we may make use of by employing an elastic Meigs's ring, as was described in treating of the first degrees of prolapse. In fact, the conditions are not unlike those that we find in that affection. The ring should be only so large as moderately to distend the upper portion of the vagina, and yet large enough not to be displaced when the patient strains down. Its effect is to straighten the uterus somewhat by traction on the vagina at its attachment to the cervix, and to prevent the rolling downward and outward of the vagina. It will not put a retroverted, or much less a flexed, uterus into its normal position, but it will improve a faulty position somewhat, and will often give relief.

A Hodge pessary may sometimes be made effectual by shortening it somewhat, and broadening the lower extremity. It then is held in position partly by taking its bearings behind the pubic arch. Where no pessary will be retained within the vagina, we must have recourse to those with external attachments.

Prolapse of the vaginal walls. Prolapse of the vaginal walls rarely occurs without some impairment of the integrity of the structures at the vaginal outlet. It is usually due to a rupture or sundering of the perineal body as a consequence of parturition. As a rule, it presupposes some prolapse of the uterus, which is also apt to be retroverted. If the anterior wall prolapses, we have what is known as cystocele, and owing to the intimate connection between the bladder and the vaginal wall they become displaced together. It is different with the posterior wall. Here the connection of vaginal mucous membrane and underlying structure with the rectum is so loose that the former may slide on the other, and become prolapsed without implicating the latter; that is, we may have prolapse of the posterior vaginal wall without rectocele. To determine whether the rectum is involved, it is necessary to pass the finger through the anus and see whether a pouch is formed.

Symptoms. Prolapse of these structures gives rise to various distressing symptoms, principally of a feeling of weight, bearing down, the presence of a tumor at the vulva, and vesical and rectal symptoms. The bulging rectocele or cystocele is often mistaken by the patient for the uterus. Inability to empty the bladder completely may give rise to changes in the urine, which may in turn cause catarrh. Many patients learn by experience that to empty the bladder it is necessary to push the prolapsed portion back into the vagina with the finger.

Constipation is frequently complained of by patients who suffer from prolapse of the posterior

vaginal wall or from rectocele. This is very apt to be due to the impairment of the muscular structure, in consequence of which the expulsive power is lost. Straining results in the filling of the rectum and the bulging of the rectocele, if that is present, but cannot overcome the resistance of the sphincter. This is the form of constipation which is helped by enemas rather than by internal remedies. The definite cure is to be looked for only when the muscular structure is repaired by an operation.

A common symptom in these cases of loss or weakening of the perineal body is the escape of air from the vagina. As the vaginal entrance gapes, air enters, and is expelled on a change of position, sometimes with noise.

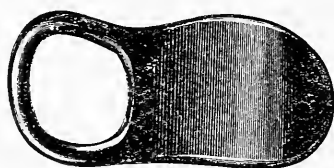
Treatment. The treatment for these conditions of prolapse of the vaginal walls is either radical or palliative. In all cases where it is possible, an operation for the relief of these distressing symptoms should be urged. Sometimes restoring the perineal body will also relieve a slight cystocele; frequently operations on both the anterior and posterior walls are required.

Palliative treatment consists in attempts to hold up the vagina by pessaries. If there is considerable muscular tone to the vagina, a pessary may be retained within it. If not, our only resource is a pessary with an external attachment, the disadvantages of which have been spoken of in the treatment of prolapse of the uterus.

A useful modification of a Hodge pessary, in cases of cystocele, is the filling in of the lower part of the support with a diaphragm of hard rubber (Fig. 90),

leaving an opening for the cervix. This holds up the redundant anterior vaginal wall. The same result may be attained in less pronounced cases with the Chadwick pessary. In old people, with atrophied and smooth vaginæ, where a hard rubber pessary would not be held, Meigs's rings may be tried. A

FIG. 90.



CODMAN & SHURTLEFF,
BOSTON.

Floored pessary for cystocele.

useful makeshift, where one has the time and patience to make it, is the so-called dumb-bell cotton pessary. This is made by rolling cotton on a small piece of some stiff material, like wood or whalebone, in the shape of a dumb-bell. This is bound tightly around the middle, so as to form a depression, and the ends are caught with needle and thread, so as not to unravel. It is then covered with the glycerite of tannin (tannic acid one part to glycerin four), and inserted into the vagina. It requires renewal every third or fourth day, but an intelligent patient can learn to make and apply them herself. Their advantage is that the rough cotton will be held in place by the vaginal walls, and it facilitates the application of an astringent, which has an additional curative effect.

Misplacements with adhesions. We come now to the consideration of a class of cases which is frequently met with, and which is considered to be among the most difficult that we have to treat in gynecological practice, viz., misplacements with adhesions. In fact, their successful treatment is interfered with by so many obstacles, that some writers consider them as generally incurable. The method of treatment, however, which I will describe, does much to remove them from that class.

The displacements complicated with adhesions which we most frequently meet with, and which demand treatment, are backward displacements. Adhesions with anteversion or flexion are very rare, lateral adhesions can hardly occur, while backward adhesions are comparatively common.

Diagnosis of adhesions. The diagnosis of their presence is often a difficult matter. Ordinarily, in cases of retroversion or flexion uncomplicated by adhesions, the body is so movable on bimanual examination, that we may confidently exclude them. When they exist they prevent the free movement of the fundus, so that even if not felt their presence may be taken for granted. Sometimes they may be felt as tight bands in the posterior cul-de-sac running from the body of the uterus backward toward the sacrum. Oftener, however, they cannot be made out by the touch, and the immobility of the fundus is our sole guide to their presence. The history of previous attacks of an inflammatory nature about the uterus confirms the probability of the existence of adhesions,

though they are very often found where no such trouble has occurred.

When there is doubt whether the uterus is adherent or not, the method of replacement which we employ will soon decide. This method is by packing the vagina with cotton pads soaked in glycerine. The way of preparing these pads or dressings has been described when speaking of packing the vagina for hemorrhage, the only difference being that these, after being wrung out in water, are soaked in glycerine, which is then squeezed out as much as possible.

Packing the vagina. The method of packing the vagina to overcome adhesions is as follows: The patient is placed in Sims's position, and the cervix and posterior cul-de-sac exposed with Sims's speculum. The vagina is freed from mucus with cotton-sticks. A dressing is then seized with the long uterine forceps, is placed high up behind the cervix, and held in place with the beak of the speculum; a second and a third are then placed close to it, and one or two at each side, leaving the anterior cul-de-sac free. This packing is carried on until the posterior and lateral cul-de-sacs are filled to a level with the os externum, each dressing being held in place by the point of the speculum until the next one is in position. Sufficient force should be used to make a firm solid mass, and the speculum should be moved freely up and down, so as not to include it in the packing. It can be best controlled by the operator, who can grasp it by the free blade, and have it completely at his command. When the space around the cervix has been well filled, the whole vagina

should be systematically packed down to the outlet. Pressure should be made from the centre outward, so as to get a firm column against which the effective wedge which is behind the uterus may get a bearing. The vagina should be filled up rather more in the direction of the rectum than of the bladder.

The best time to begin a course of packing is two or three days after the cessation of the menses. It may be left in three or four days, preferably three to begin with, as the first packings will grow loose in that time.

For removal the patient should be placed in the Sims's position, and the tampon should be removed piece by piece with the tampon extractor. This is a slender instrument having a double screw at the end, which is twisted into each piece as it comes into view. The highest pieces are sometimes difficult to find, but they should be carefully sought for, as, if allowed to remain, they become foul, and are a source of irritation.

A second packing is then placed, and the same process repeated until the sickness is expected, when it should be discontinued, to be resumed after the catamenia.

After two or three packings the position of the uterus should be tested by carefully passing the probe. If considerable improvement is found, it may be well to apply a moderately tight pessary to be worn during menstruation, so as to hold all that has been gained. When the uterus is found to have regained its normal position, a pessary should be adjusted according to the rules laid down earlier in

this chapter. It should be remembered, however, that the vagina has become somewhat stretched by the packings, and we should either take rather short measurements at first, or be prepared to substitute a smaller pessary after an interval.

Preparatory treatment. Not every case is suitable for this treatment at first. In some cases there is very apt to be sensitiveness of the vagina and uterus, and it is often wise to precede the systematic packing by placing, for a few times every second day, several cotton dressings, which may be allowed to remain from twelve to twenty-four hours, and by hot-water douches in the interval. But neither sensitiveness, nor even thickenings the result of inflammatory processes, are contra-indications to this method of treatment. In fact, a firm tampon will often markedly relieve pain, and the action of the pressure and glycerine seems to tend toward the absorption of inflammatory deposits.

More relief from pain may sometimes be secured by saturating the upper pads in a mixture of glycerine and iodoform 10 : 1, with a drop of the oil of peppermint to the ounce to disguise the odor.

The dressings should not be allowed to remain longer than four days for two reasons. In the first place, they begin to get foul by that time, and might prove a source of irritation if left longer. This difficulty might be avoided by soaking the dressings in a weak solution of carbolic acid or thymol, but the second reason for removing them at the end of the third or fourth day makes such treatment of them unnecessary. Under the constant pressure of the packing

the vagina becomes stretched, and a tampon which is tight when placed, becomes loosened so that after that length of time it fails to be of any service, and should be removed. If any of the lower pieces become loosened, the patient should be instructed to remove them, as they are apt to cause considerable annoyance. There is sometimes difficulty with defecation or with micturition. If the former, the bowels should be moved with cathartics (not by injections) for a few days until the parts become more used to the presence of the tampon. If there is difficulty with micturition, or a more frequent desire to pass water, the trouble may be relieved somewhat by substituting a wad of dry cotton for the few lowest glycerine dressings.

The patient may go about as usual; in fact, it is rather an advantage for her to exercise, especially in walking. The slight up-and-down movement of the body during locomotion and the strengthening of the abdominal muscles tend to elevate the uterus toward its normal position.

Where additional force seems essential to make the uterus budge, it may be gained by packing while the patient is in the knee-chest position, by which the fullest depth of the vagina is attained. In some cases where the adhesions seem to be high up on the body of the uterus, and at one side, it is impossible to bring the fundus forward. It may, however, be swung round so as to make a lateral version or flexion, which will often give all the relief required. Where we have a small uterus, a short cervix, and very little cul-de-sac, packing will often fail, as it is impossible to get behind the uterus to press it for-

ward. The tampon in these cases merely raises the uterus as a whole to a higher level without modifying the flexion.

The time necessary to overcome the adhesions varies with the individual case. With cases which show improvement up to a certain point, but cannot be completely replaced, it is often necessary to suspend treatment, and fit as large a soft-rubber bulb pessary as can be comfortably worn. This will keep all that has been gained, and perhaps accomplish a little more. Patience both on the part of the patient and the doctor is very necessary with this form of treatment. If after a month's steady effort no marked gain is observed, it is wise to give ether and attempt the reposition by the use of moderate force. If that fails and the patient is fairly comfortable with what has been attained, a support should be adjusted. If she still suffers enough to warrant it, laparotomy and the breaking up of adhesions and stitching the uterus to the anterior abdominal wall is appropriate treatment.

I have dwelt thus at length on this method of overcoming adhesions by packing, because we have in it a way of treating these difficult cases which is both safe and often effectual. It is, at any rate, the one non-surgical method which holds out the best chance of benefiting these trying and often desperate cases. Other methods which have been proposed have for their aim the loosening of adhesions by the use of force, either with instruments or by the fingers. The use of a sound or other repositor is a dangerous procedure, which cannot be recommended. The method

proposed by Schultze of separating the adhesions with the fingers from the rectum under ether often accomplishes very little more than systematic packing will effect.

Method of altering shape of pessary. It is sometimes advisable to change the shape of the pessary to meet some new condition, or to modify the curve of one which has been discarded, to suit some new case. This may be done easily in the case of a hard-rubber pessary at one's office in the following manner. Cover the part of the pessary to be bent with some grease like lard or simple ointment, and then heat over an alcohol lamp by quickly moving the pessary to and fro through the flame. This is necessary in order to avoid burning the gutta-percha and thus removing the polish. Every now and then add a little grease. After a minute or two it will become so softened that it can be curved or straightened. When its shape is modified to suit the requirements of the case, it should be plunged into cold water while held in the desired position, when it will become firm and retain its new shape.

Hard and soft rubber. Pessaries are usually of rubber, either hard or soft. The advantages of the former are its smoothness and hardness of surface, which render it non-irritating, prevent its absorbing the secretions, and enable it to be easily cleansed. Its objections are that its stiffness makes it hard to insert in cases of narrow introitus, and less easy to wear where vagina and uterus are sensitive to pressure, or it impinges on a prolapsed ovary.

These objections are overcome by the use of soft

rubber pessaries which have as a foundation either copper wire which can be bent to any required shape, or a spiral spring which allow of their being bent for introduction into the vagina, but causes them to resume their original shape. These latter may, however, be permanently bent with the use of considerable force. The objections to their use are that they become foul, and sometimes cause an irritating and ill-smelling discharge, and that they wear out quickly.

Coitus is not usually interfered with by the presence of the ordinary pessaries used for ante- and retro-deviations. A greater decree of care is, however, necessary to avoid injury.

Abrasions. Even when the greatest care has been used in the fitting of a pessary, abrasions will sometimes occur. The points to be particularly guarded against are those where the pressure is greatest, and these places should be especially examined when the pessary is removed and cleansed. Such are the posterior cul-de-sac where the uterus rests upon the top of the pessary, the points on the posterior vaginal wall, opposite the greatest curve of the arms of the pessary, and low down on either side where the support takes its bearing against the rami of the pubes. If abrasions are found the pessary should be removed, the vagina packed to hold the uterus in good position, and this course continued until the abrasion is healed. The pessary should then be so modified as to prevent the recurrence of the trouble.

CHAPTER VIII.

CHRONIC INFLAMMATORY CONDITIONS OF THE UTERUS.

UNDER this head it is proposed to treat of those common affections: chronic metritis, chronic endometritis, and chronic endocervicitis. The acute inflammations of the lining membrane of the uterus, and of the muscular structure of the organ are not considered—first, because they are very rare; and, second, because when in the active stage they usually do not call for local treatment, but are to be governed by the same rules of therapeutics as acute inflammatory affections of other organs, viz., rest, antiphlogistics, and anodynes.

The chronic conditions above referred to, however, form a very respectable contingent of the diseases to which the uterus is subject, and their successful treatment should be thoroughly understood by every general practitioner.

In the majority of cases in which we find one or more of these affections present, it is impossible to get at the history of any acute attack, except in those cases where the uterine affection is secondary to gonorrhœal vaginitis. The chronic inflammatory state which we find present on our first examination seems to have developed insidiously. Whether an acute stage *must* have preceded the chronic is, per-

haps, open to doubt. I am of the firm opinion that not only inflammatory conditions affecting the uterus itself, but even those which we find affecting the cellular tissue outside the uterus, especially the broad ligaments, may, if the paradox be pardoned, be chronic from the start. Slight causes operating for a long time may, and do, gradually induce tissue-changes that are identical with those which follow a sharp acute attack, where complete resolution has not taken place, and the ordinary chronic condition has resulted. We may, therefore, for all practical purposes, study these affections as independent entities.

Chronic metritis. Chronic metritis, or, as it is generally called in this country, after Thomas, areolar hyperplasia, affects the muscular structure of the uterus. Its course may be divided into several stages. The first stage may be called that of engorgement. Here the uterus is full of blood, heavy, less firm and elastic than usual, and considerably enlarged. When this state of things has lasted for some time, there begins a proliferation of connective-tissue cells, the uterus grows firmer, it is less engorged with blood, and the organ grows smaller. As this new connective tissue is formed, however, it contracts at the expense of the normal muscular tissue, the blood-vessels become compressed, and in time the organ becomes small, dense, and fibrous. This constitutes the last stage of the process.

Causes. As will be seen from this brief sketch, any cause which for a long time interferes with the normal circulation of blood in the uterus may lead to this chronic inflammatory condition. It is most com-

monly met with in women who have borne children, especially in those who have had numerous pregnancies in quick succession. As a rule, with proper care the uterus in the few weeks succeeding parturition returns to its normal size and condition. This is expressly favored by lactation, and the process is called involution. If, however, it is interfered with, either from the patient too soon returning to her ordinary duties, or from the development of a displacement, or the occurrence of some inflammatory process in the neighborhood of the uterus, we find the organ remaining enlarged and engorged with blood, and the first stage of chronic metritis is present. This is conveniently called subinvolution. The same condition, though as a rule in a much less degree, may be found in single women, or in married women, the result, not of pregnancy, but of aggravated displacements, or chronic engorgement from faulty modes of living. As a rule, these conditions result in inflammations confined to the lining membrane of the canal and body; but, occasionally, the muscular structure of the uterus may be affected. When this is the case, however, the uterus very rarely attains the size that it does when due to puerperal causes. We find it in this modified degree in women who are obliged to be on their feet a great deal, or who run the sewing-machine for hours together, or who follow any occupation which tends to keep the pelvic organs engorged.

Physical signs. The physical signs on examination are a large, heavy body, usually somewhat sensitive, varying in consistency according to the stage and

the length of time the favoring conditions have been operative. The canal is often not much increased in length as measured by the probe, for the increased size is usually principally due to a thickening of the muscular wall. There is some increase, however, oftentimes not more than half an inch to an inch. The increase in size is symmetrical, thus distinguishing it from a fibroid developing in the uterine wall.

Symptoms. In the earlier stages menstruation is apt to be increased, and there is usually dysmenorrhœa. As the cirrhotic change, if it may be so called, gradually develops, the flow tends to become scanty, and the pain usually increases. There are present pain in the back and a feeling of weight in the pelvis, due to the increased blood supply, especially at the time of menstruation. At times there is frequent and painful micturition.

Treatment. The treatment will naturally vary with the physical conditions which we find present.

Local. If seen in the beginning, where subinvolution is the prominent factor, as in the cases of puerperal origin, the indications are to relieve the congestion and to increase the muscular tonicity of the uterus. The first object may be aided materially by the persistent use of the hot-water douche twice a day. The very important rules laid down in Chapter IV. for its use should be rigidly observed, viz.: the recumbent position of the patient, the water at a temperature of from 110° to 120° F., and the full quantity of six quarts. The effect of a douche given in this way will often last for twelve hours. Twice a week applications of Churchill's tincture of iodine

should be made to the vault of the vagina, and a glycerine dressing applied, to be worn twelve hours and then removed. Applications made to the interior of the uterus by means of the applicator, as will be described later, will often prove efficacious in obstinate cases in reducing the size of the uterus. These should be preferably the milder ones, such as the tincture of iodine or the glycerite of tannin.

The pain which is usually present, and is due to the dragging of a heavy uterus, may be relieved, and the circulation, as a whole, improved, by the adjustment of a support. I have found the Chadwick pessary, described on page 202, to be the best for this purpose. If there is much lividity of the cervix, and especially if there is an erosion about the os, occasional puncturing with the bistoury and the removal of perhaps a teaspoonful of blood, will be of benefit.

We very often find a large subinvolted uterus associated with a laceration of the cervix, and attempts at reducing the size of the womb will be very apt to be futile as long as the cervix is left unoperated upon. The operation should be urged as soon as the patient's health will admit of it, and will often prove of more benefit than months of treatment by applications and puncturing.

General. A great deal can be accomplished by regulating the patient's mode of life. The involution of the uterus is a physiological process which is, in a great measure, dependent upon the general state of health for its successful completion. The better state of general health a woman can keep herself in, the more likely is the womb to return to its normal size

and condition. It is unnecessary here to go into the details of the physiological and hygienic principles which should be acted upon to attain this end, but a few points may be briefly touched upon. Nourish the patient well. See that she eats healthful and sufficient food, and regulate the bowels. Too much exercise of one kind should be avoided. It is a mistake to suppose that long walks are advantageous. Short periods of exercise, followed by lying down, so as to insure thorough rest, are to be enjoined, and much standing about the house, or going up and down stairs, are to be forbidden. All kinds of work which necessitate long periods of standing or sitting, and especially work which involves the use of a treadle, as a sewing-machine, are very prejudicial. The clothing should be comfortable about the waist, and the arms and legs protected by woollen garments. If the physician remembers that the essential feature in these cases is pelvic congestion, his common sense will suggest to him what to advise his patient to do to lessen it as much as possible.

The earlier such cases come under treatment the better. In just so far as the tissue-changes described above have progressed, will the ultimate return of the uterus to its normal size be doubtful, and the treatment be palliative rather than curative. If the patient first comes under observation after such changes have occurred, as is evidenced by the firmer consistency of the womb, and by the decrease of the amount of the catamenial flow, our treatment will be largely symptomatic. A pessary to raise the organ will often afford great relief to the dragging and pain which are

so often complained of. The dysmenorrhœa and scanty flow are two other symptoms which frequently lead the patient to seek the advice of the physician. What was said under the head of congestive dysmenorrhœa and scanty menstruation, as regards treatment, will apply here. Hot-water douches during the intermenstrual period, with occasional applications of iodine or something similar, are indicated, and at the time of the menstrual flow the application of a leech or free scarification—preferably the former. For the arrest of the tissue-changes I should rely on electricity, in the form of galvanism, applied after the method of Apostoli, with one electrode in the uterine cavity, the other on the abdomen. I have also found faradization of considerable benefit in these cases.

Chronic endometritis and endocervicitis. Chronic endometritis and endocervicitis may be conveniently considered together, inasmuch as they very frequently coexist, the symptoms are closely allied, and the treatment is similar. Like all chronic inflammatory processes of mucous membranes, the symptoms are swelling and hyperæmia of the membrane, with increased muco-purulent discharge. The symptoms of which the patients most frequently complain are pain in the back, a feeling of weight and heaviness in the pelvis, and leucorrhœa, or the “whites,” as it is popularly termed. The discharge is described as thick, whitish, or yellowish white, usually without any specially disagreeable odor.

Leucorrhœa. It must be borne in mind, in estimating the value of leucorrhœa as a symptom, that women

differ very greatly as to their ideas of what constitutes an abnormal discharge. With many women the slightest moisture is a source of annoyance, and will lead them to consult a physician. Usually, however, a considerable leucorrhœal discharge will be tolerated without complaint. The women with whom it is profuse enough to necessitate their wearing a napkin are very few. Two popular beliefs, in a measure, influence the habits of women in this respect. In the first place, leucorrhœa is looked upon as a loss of some highly important fluid of the body and as very weakening. Instead of recognizing that the discharge is very often a result of the weakened and debilitated state of the general health, it is regarded as the cause. But there is also a popular impression that wearing a napkin, by heating the parts, favors an increase of the discharge; hence cleanliness is sacrificed.

Amount of leucorrhœa. A woman's statement, therefore, as to the amount of the leucorrhœa must not be relied upon, but the physician must satisfy himself by a physical examination as to its character and amount. The cervix is exposed with the speculum, and the character of the discharge, which is either found in the upper part of the vagina or exuding from the os, usually both, is carefully noted. Normally there is almost no *free* secretion in the vagina. The walls are moist, but there is no extra amount of mucus which can be isolated and examined by itself. The cervical canal often contains a small amount of perfectly clear mucus, like the white of an egg, which projects from the os. There may

even be no appreciable amount of this. The variations from the normal may be two, either simply an excess of mucus of the ordinary character, or mucus altered in the way to be described, and usually increased in amount.

The first change is the rarer, and, as a rule, is found as a result of debility, and is not of inflammatory origin. We find the cervix filled with a large amount of clear mucus, and there is usually a considerable quantity present in the vagina.

A common symptom of this form of leucorrhœa is that at intervals during the day, especially on any slight exertion, there will be a gush of mucus from the vagina, followed by a period of complete freedom from it. Two factors favor the occurrence of this phenomenon: first, the viscid character of the discharge, which prevents its flowing easily, and, second, the tight closing of the vaginal orifice. The latter is more likely to occur in unmarried women, and it is principally among them that we find this form of leucorrhœa.

Character of leucorrhœa. In other cases the discharge is altered in character as well as in amount. It becomes opaque, turbid, and more viscid, later turning to yellow, and becoming very thick and tenacious. The depth of color and the degree of viscosity are very good guides to the severity of the case and the ease with which it will yield to treatment. Such is the discharge which is characteristic of the endocervical inflammation. That which comes from the body of the uterus is thinner and less tenacious. It is rare, however, to find that present alone,

except as a result of fungoid degeneration of the mucous membrane of the body, which we will come to speak of later. In fact, the evidence which we can get by our physical examination of the presence of a catarrhal condition of the lining membrane of the body is very slight. It is claimed that hyperæmia of the mucous membrane is shown by the fact that a drop of blood follows the careful introduction of the probe, and this is probably the case. Still, the first introduction of the probe is more or less a blind piece of work, and before the correct curve is obtained the delicate membrane is liable to be wounded. Hence blood following the *first* passage of the instrument should not be accorded too much diagnostic value. If, after the direction of the canal is known, and every time the probe is carefully passed blood follows, it may be assumed that the membrane is hyperæmic, and endometritis in its earlier stages may be inferred. When it has gone on to such degenerative changes as we find in advanced cases, the character of the discharge points conclusively to such a condition. The presence of an abnormal discharge, therefore, points to diseased mucous membrane, very probably of the cervix, possibly of the body of the uterus.

Treatment. Treatment, as usual, resolves itself into general and local. General treatment comprises whatever will build up the health of the patient, and will be particularly efficacious in those cases first spoken of where the discharge seems to be due to general causes. Women broken down from any cause will often suffer from a leucorrhœal flow, which only needs

rest and general tonic and hygienic treatment for its complete cure. So-called scrofulous women are also liable to this form of endocervicitis.

As a stepping-stone from general to purely local treatment, hot douches may be mentioned. These may, from their antiphlogistic properties, be of benefit in the less inveterate cases, but it is doubtful if in the ordinarily chronic cases they are able to modify to any great extent the character of the mucous membrane of the cervix, or affect the amount of the discharge. By washing away the mucus which has collected in the vagina, they make the patient more comfortable, and they neutralize and prevent the irritation which the cervical leucorrhœa not infrequently causes to vagina and vulva.

Applications to endometrium. Our main dependence in the treatment of these affections must be upon topical applications to the diseased mucous membrane. These are best made in the following manner: The cervix having been exposed with Sims's speculum, the first step is to remove the mucus from the uterine canal. This is obviously necessary, as otherwise the application would spend itself upon the mucous plug and not touch the diseased membrane. Usually the discharge is too tenacious to be dislodged with the cotton-stick. The best way to remove it is to suck it out with the uterine syringe. A very practical and effective modification of the ordinary syringe has been made by Dr. William H. Baker (Fig. 91). The long, straight nozzle of the hard-rubber uterine syringe is cut off perhaps an inch from the barrel. Over this is slipped a bit of India-rubber tubing two

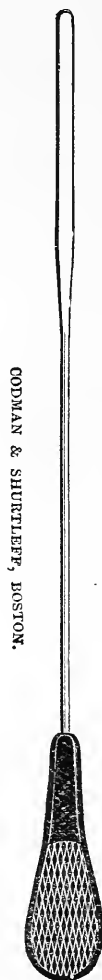
inches in length, and into the other end of the tubing is inserted a piece of small glass tube four inches

FIG. 91.



Uterine syringe.

FIG. 92.



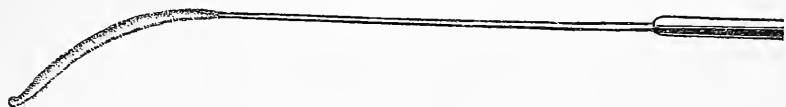
Applicator.

long. The India-rubber tubing is firmly tied at both ends. This gives us a long-nozzled instrument with what is practically a movable joint—an advantage

which will be thoroughly appreciated by anyone who has tried to introduce the long, stiff nozzle into a cervix which is not pointing in the axis of the vagina. The glass tip enables us to see when any mucus has been withdrawn. It is important that the glass tubing should have a perfectly smooth end, so as not to wound the membrane.

The syringe is used in the following way: The piston should be fairly tight, so that there may be good suction power; a little water is then drawn into the syringe, the point inserted into the os uteri, and the piston quickly drawn back. The mucus is

FIG. 93.



Applicator wound for use.

then driven out of the tube by the water in the syringe. This discharge is often so tenacious that if a little water were not previously drawn in, it would be difficult to dislodge. Two or three attempts may be necessary before the plug can be drawn out, and occasionally the suction force of the syringe is not sufficient to accomplish it at all. In such cases a bit of dry sponge on a sponge-holder, passed just within the os and twisted, will usually so entangle the mucus that it will yield.

The canal having been thoroughly cleansed from the secretion, the necessary application is made by means of the applicator. This is a long, slender, flexible instrument, like a flattened probe (Fig. 92).

A small bit of absorbent cotton is drawn out into a thin film, about two inches and a half long by an inch wide, which is wound smoothly and tightly on the applicator, care being taken to make it secure at the lower end by moistening it and giving it an extra twist (Fig. 93). The applicator is then curved to correspond exactly with the direction of the canal as found by the probe. It is then dipped into whatever application it is desired to use, and is passed into the canal as far as the internal os, if we wish to limit the treatment to the cervix; as far as the fundus, if the whole canal is to be treated. It is allowed to stay in position a short time, so that the muscular contraction which is excited by the presence of the applicator may favor the thorough action of the medicinal agent on the mucous membrane, and then withdrawn. Any excess of the substance applied, especially if of a caustic nature, should be caught by absorbent cotton, and not allowed to run over the vaginal walls. A cotton dressing with glycerine should then be placed against the cervix, and allowed to remain from twelve to twenty-four hours.

Various applications. The nature of the application depends upon the length of time that the inflammatory condition has lasted, and the degree to which the glandular structure of the cervix is implicated. The milder the affection the milder the application. Two considerations should, however, lead us to begin in all cases with the simpler forms of treatment: first, the fact that it is impossible to say beforehand how the uterus will bear any internal medication; and, second, the impossibility in many cases of judg-

ing from the physical signs whether the case is one which will yield readily or not. It is, therefore, wise to start out with mild applications. The two which will prove efficacious in a large number of simple cases are Churchill's tincture of iodine, the formula of which has been given on page 102, and the glycerite of tannin (tannin 1 part, glycerine 4). With a small os and a narrow canal the iodine will be found easier of application than the tannin, as the latter causes so much puckering of the tissues from its marked astringent qualities that it is difficult to introduce the applicator. Where the os is patulous this objection does not hold.

When these simple applications fail to effect improvement, iodized phenol—a mixture of equal parts of tincture of iodine and crude carbolic acid—may be tried. This is a very valuable application. It has a moderately caustic effect, and the excess should be prevented from running over the vaginal walls. Shreddy bits of membrane will be found in the douche after a few days, which represent the superficial slough. A still stronger application is the impure carbolic acid alone. This has a more energetic action on the surface to which it is applied. It is, however, comparatively painless, and may be applied at the physician's office.

If the given case has resisted all these various forms of treatment, it may be considered obstinate, and still stronger measures employed. The first of these is the application of pure nitric acid. Certain precautions should be observed with this which are not necessary with the other methods. This application

had better be made at the patient's house, and she should keep her bed for at least twenty-four hours. The canal should be somewhat dilated, unless it is very patulous. This can be done either by the introduction of a small laminaria tent six to eight hours before, or at the time of the application with graduated dilators, or a small Ellinger. The excess of nitric acid should be neutralized by placing bicarbonate of soda in the left cul-de-sac, which is the lower as the patient lies in the Sims's position, or by placing cotton saturated with a solution of the same about the os. Having taken these precautions, the

FIG. 94.



CODMAN & SHURTLEFF, BOSTON.

Sims's sharp curette.

method of procedure is the same as for the milder forms. Such an application as this should not be made oftener than once in two weeks. The iodine and tannic acid may be applied every third or fourth day, the iodized phenol or carbolic acid once in five or six. The cases which call for such vigorous treatment are those where there is considerable hypertrophy of the gland tissue, and the ordinary applications do not reach much below the superficial layers of the mucous membrane. Such cases usually show ectropion of the cervix, and are characterized by a large amount of a very tough, viscid mucus. Sometimes nitric acid fails to reach the whole of the diseased area, and we are driven to still more radical

measures. The first of these is thorough curetting of the cervix with the sharp curette (Fig. 94), followed up by an application of nitric acid. This removes the superficial layers of the mucous membrane, which is then more efficiently acted upon by the acid. This necessitates ether for its proper performance.

The last resort in the ultra-obstinate case is an operation, by which the mucous membrane of the cervix is, to a considerable extent, dissected off or reamed out. This, however, belongs to the domain of purely surgical gynecology, which we are leaving out of consideration in this work.

Treatment of endometritis. The treatment in the ordinary case of endometritis is similar to that recommended for endocervicitis, with slight modifications. The applications are the same, but if the medicinal agent is to reach the mucous membrane above the internal os, we must provide against its being used up as it passes through the cervical canal, and none being left for the diseased tissues beyond. This is secured by previously dilating the canal either with graduated sounds or with the dilator before referred to. Exceptionally, it may be of advantage to pass a small tube into the canal as far as the os internum and make the application through this. This precaution should always be observed when the stronger applications are used, as it is of the utmost importance that the excess should have free exit. It is the failure to secure this free drainage which has brought into disrepute the method of intra-uterine medication by means of injecting a few drops of some remedial agent into the uterine cavity with a syringe.

In addition to care in the method, when nitric acid is to be applied, the patient should be seen at her home, and be kept quiet in bed for a day or two.

Hyperplastic endometritis. There is one form of endometritis of which the symptoms are different, and which calls for different treatment. It is called by several names: endometritis hyperplastica, or fungosa, or fungoid degeneration of the mucous membrane. It is characterized by the presence on the lining membrane of the uterus of small growths, of soft consistency, varying in size from a millet-seed to a pea, and which consist of much hypertrophied mucous membrane, enlarged follicles, and dilated bloodvessels. Any cause which tends to keep the organ filled with blood favors their production.

The special symptom which points to this affection is hemorrhage, either at the time of menstruation or between the periods, and in the intervals between the attacks of flooding, a profuse, thin discharge tinged with blood. This latter points more clearly to the presence of fungoid degeneration than the former, which is common to many other affections.

The only treatment which promises success is removing these growths by means of the curette. Applications to the interior of the uterus may for a time arrest the symptoms, but, unless preceded by curetting, will seldom effect a cure.

The dull-wire curette (Fig. 95) may sometimes be employed without ether, provided the cervix is sufficiently dilated, and it is very apt to be softened from the prolonged discharge. It is rather painful, but oftentimes not so much so that ether is necessary.

Following the curette there should be a thorough application of tincture of iodine to the whole interior of the uterus.

FIG. 95.



CODMAN & SHURTLEFF, BOSTON.

Dull-wire curette.

Where the symptoms have lasted a long time, and there is a profuse sanguineous discharge from the uterus, especially if milder treatment has been tried without lasting effect, Sims's sharp curette should be used. This necessitates ether, and the scraping should be thorough. The growths which are the most difficult to remove are those situated at the fundus, especially near the openings of the tubes. Sometimes dilatation with tents or dilators must precede the curetting.

CHAPTER IX.

SOME OF THE MORE COMMON AFFECTIONS OF THE VULVA AND VAGINA.

In this chapter I propose to treat of those diseases of the vulva and vagina which we meet with most commonly in general practice, and the treatment of which should be thoroughly understood.

Vulvitis. This affection occurs occasionally in young children, the result probably of a want of cleanliness, or, rarely, from injury due to an attempt at rape. The symptoms are redness, itching, and later burning, especially on micturition, swelling, and a purulent discharge. These may be so severe as to make walking difficult, and to necessitate the child's lying in bed, with thighs widely separated.

In women vulvitis most frequently follows parturition, though it is only exceptionally that the symptoms attain any great severity.

The treatment consists in soothing and mildly astringent applications to the inflamed surfaces. A favorite wash is a one or two per cent. solution of acetate of lead, and it is best applied on a strip of linen cloth, which should be placed between the labia, so as to separate the surfaces. The parts should be frequently bathed, and the secretions, which are sometimes difficult to reach between the

swollen labia, should be syringed off with a stream of warm water. When excoriations occur, insufflations of iodoform will be of use.

Eruptive diseases of the vulva. There are several forms of skin disease which not infrequently occur on the external female genitals. They are eczema, herpes, lupus, occasionally prurigo, and a few others much more rarely. Their course and treatment are the same here as when they occur in other parts of the body, and they are merely mentioned in this connection to emphasize the possibility of their occurrence, and to warn against these simpler skin affections being confounded with the lesions due to venereal affections.

Vaginismus. This affection was first described by Marion Sims, and the name *vaginismus* given to it. It is a condition of extreme hyperæsthesia of the vulva and introitus vaginæ. This may vary in intensity from the mild condition, where intercourse or the introduction of the finger is painful, but not impossible, to so aggravated a state that the lightest touch provokes the most painful cramps. In such cases intercourse is, of course, impossible.

As a rule, there is no evident cause for this extreme sensitiveness, and *vaginismus* proper must be considered a true neurosis. There are conditions of the vulva or adjacent parts which may cause painful contractions, such as urethral caruncle, or fissures of the hymen, or vaginitis, but these are not properly cases of *vaginismus*. The removal of the cause will relieve the dyspareunia.

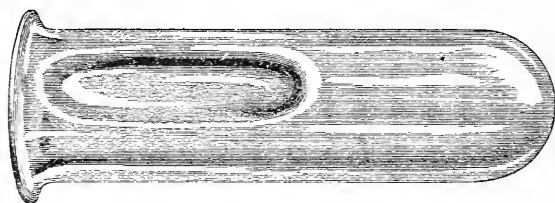
The treatment of this extremely painful and obsti-

nate affection must be mainly local. General measures and internal treatment must be limited to building up the generally depressed nervous tone and quieting the nervous excitability.

Our main reliance must be upon diminishing the sensitiveness by local treatment. Even in the mild cases little can be expected from any but the most radical measures. Applications of astringents, or of local anæsthetics, such as cocaine, rarely accomplish any good at all.

The best plan to pursue in the less severe cases is forcible dilatation under ether. The patient being thoroughly anæsthetized, she is placed in the dorsal position with the thighs flexed on the body. The two thumbs are then inserted into the vulva, and are

FIG. 96.



CODMAN & SHURTLEFF, BOSTON.

Glass plug for vaginismus.

separated as widely as possible until the muscular fibres of the sphincter vaginæ are felt to give way. Considerable force has to be used to stretch the parts sufficiently. A glass plug (Fig. 96) should then be inserted, to be worn constantly at first, being removed only when it is necessary to defecate or urinate. Later, the plug may be removed for a short time, increasing this as the parts become more tolerant,

until it is worn only for an hour or two each day, and, finally, dispensed with altogether. Intercourse should be deferred until the cure is definitely made, as the introduction of the penis is more likely than anything else to evoke the spasm.

Should forcible stretching under ether be unsuccessful, the more radical and serious operation proposed by Sims, of removing the hymen with a strip of adjacent mucous membrane, should be resorted to. The after-treatment with glass plugs should be systematically followed out to insure the success of the operation.

A method of treatment for this obstinate affection which has recently been advocated, and promises good results, is the use of the galvanic current. A mild current applied with one pole on the perineum, the other gently rubbed over the sensitive parts, at intervals of a day or two, has in a comparatively short time been followed by cure.

Affections of the vulvo-vaginal glands. The vulvo-vaginal glands, or the glands of Bartholini, are small oval bodies situated on each side near the lower margin of the vaginal orifice. The ducts leading to the glands are about half an inch in length and open just in front of the base of the hymen near its middle. These glands are liable to become the seat of trouble in two ways: either from an occlusion of the excretory duct, and consequent retention of the natural secretion, constituting a so-called cyst of the gland, or from an inflammatory process extending along the duct, and occlusion following, the gland itself

becoming inflamed and secreting pus, and forming an abscess.

Occasionally a cyst may exist for a long time, and then from some cause, traumatic or otherwise, the contents become purulent, and an abscess results. Other cases swell, and after a lapse of time the contents are either absorbed or are spontaneously evacuated.

In either case the prominent symptom is a small circumscribed swelling, usually not larger than an English walnut; if a simple cyst, not especially painful, but uncomfortable and annoying from its presence; if an abscess, quite painful, interfering with locomotion, and pressed upon so as to cause pain with almost every movement of the body.

It may be readily detected, if on the right side, by passing the right forefinger just inside the vagina and palpating the lower part of the labium between it and the thumb, or if on the left side, with the left forefinger and thumb.

Causes of cyst and abscess. The special exciting cause of the occurrence of a cyst is not clear. There seems to be a predisposition in the case of some women to the formation of these tumors, as they may occur three or four times at intervals, either on the same side or on opposite sides. In some cases they discharge spontaneously, presumably through the natural duct; in other cases they are opened, but re-fill. The occurrence of an abscess is more often due to gonorrhœa than to any other one cause, though they may occur entirely independently of any specific disease. They may develop slowly, and, where this

is the case, are very probably at first simple cysts, the contents of which later become purulent; or they quickly take on active inflammation, and in the course of a few days become large and painful, and, if not opened, burst spontaneously. As a rule, the cysts are of much slower development than the abscesses, and are much less painful. In fact, they may exist for a very long time without causing any inconvenience whatever.

Treatment. The treatment for both conditions is the same, viz.: emptying the sac by incision. This slight operation is rarely painful enough to require ether. The incision should be made on the inner surface of the labium near the margin of the hymen, a point which, in fact, corresponds to the natural position of the duct. In a certain proportion of cases—probably the majority—the sac does not refill. In others the affection tends to recur, and special treatment to prevent it is necessary. My rule is, if the contents of the cyst are purulent, after thoroughly evacuating it, to pack the cavity with cotton soaked in some irritating substance, like iodine or liquor ferri subsulphatis, to prevent its healing and make it granulate from the bottom. This should be renewed every other day until there is no longer any cavity to pack. There will be considerable inflammatory reaction for a few days, and the patient had better be kept moderately quiet.

Pruritus vulvæ. This is a symptom for which the physician is often consulted, and which in not a few cases he will find very stubborn. It may vary in intensity from a slight discomfort to such violent itching

that the sufferer tears at herself until the parts are raw, shuns society, and is rendered utterly miserable. The troublesome symptom is more apt to come on at night, especially after getting warm in bed.

Due to irritating discharge. The most common cause is undoubtedly the presence of an irritating discharge from cervix or vagina. In these cases the itching is quite apt to be somewhat inside the vagina, as well as on the outside—a troublesome variety, inasmuch as the parts not being so well within reach, the relief afforded by scratching is only partially attained, and the nervousness is increased. As a rule, the pruritus from this cause is not of the intensest type, and as the cause can be definitely known and the appropriate remedies applied, its duration is apt to be limited.

The treatment consists in checking the irritating discharge, whether from cervix or vagina, by the methods described when speaking of endocervicitis and vaginitis, viz., hot-water injections, simple or medicated, applications to cervical canal or vagina, and packing.

To allay the intense itching, all sorts of local applications have been recommended in the form of ointments, washes, and powders, which it would be impossible to enumerate. It is often necessary to try a number in rapid succession before the happy remedy or combination of remedies is hit upon. Each one's own ingenuity will suggest various substances to try. I will merely indicate a few of the more successful ones in my hands. Frequent bathing of the parts with

hot water, or with a one or two per cent. solution of carbolic acid, or with the following combination :

| | | | | | | |
|-------------------|---|---|---|---|---|---------|
| R.—Acidi carbolic | . | . | . | . | . | 1 |
| Glycerinæ | . | . | . | . | . | 10 |
| Aquæ calcis | . | . | . | . | . | 100.—M. |

has been in many cases followed by the happiest results. Of ointments, the benzoated oxide of zinc, and one consisting of one part calomel to twenty-five of simple ointment, have been most successful. Powders will sometimes succeed when washes and ointments have failed.

Due to misplacement. A second cause of pruritus which I have occasionally met with, has been an interference with the circulation from some misplacement of uterus or vaginal walls. In these cases such malposition has been the only local cause found, and its correction has been followed by improvement or cure. This has seemed to me analogous to the pruritus ani which we find associated with hemorrhoids, or, at least, a congested state of the lower rectum. The adjustment of a proper support has in not a few cases been followed by the happiest results.

Neurosis. There is, however, a considerable number of cases in which we find no local difficulty to account for the symptom, and are forced to look upon it as a neurosis. These cases are usually stubborn, and are apt to occur in women of a nervous diathesis. The effect upon the nervous system is much more profound than in the cases previously considered, and the *morale* of the patient suffers. It is among these patients that we find that the constant rubbing and

itching lead to masturbation—a habit which may, to be sure, be developed as the result of any form of pruritus, but which is more often found in those of purely nervous origin.

In the treatment of these latter cases, general tonic measures, directed especially to the nervous system, with particular attention to the patient's mode of life in the way of securing agreeable and healthful occupation, and inducing her to live a robust sort of life instead of a luxurious, enervating one, will be found to be of equal if not greater importance than local treatment.

Galvanism has been recommended for this trouble, applied in the same way as described for vaginismus.

Vaginitis. Inflammatory affections of the vagina may be either acute or chronic. By far the most common cause of acute vaginitis is gonorrhœa. The symptoms are a sense of heat and irritation in the vagina, sometimes itching, especially just within the introitus, swelling and redness of the mucous membrane, and the presence of considerable leucorrhœal discharge. Accompanying these symptoms there is often an increased frequency of micturition, and pain accompanying the act. This latter symptom is said to be pathognomonic of the gonorrhœal origin of the vaginitis, and when taken in connection with a clear history of exposure, and the above train of symptoms following in due order of time and sequence, it is very conclusive. Other causes are irritating discharges from the uterus, especially associated with the puerperal state, mechanical irritation from too stimulating applications or injections, from

pessaries, or from too frequent coitus, and various general affections such as the exanthemata. The discharge in acute vaginitis is at first whitish, speedily becoming yellowish, and in severe cases greenish. It is at first thin, but grows thicker as it becomes more purulent, and resembles cream in color and consistency. It is not as ropy and tenacious as the discharge from the cervix, but is somewhat viscid. From its profuseness it is very apt to glue the hairs of the vulva together in spite of ordinary attempts at cleanliness.

The vagina feels hot to the examining finger, and the simple digital examination causes pain, as does the introduction of the speculum.

Fortunately, the cause of the vaginitis does not affect the treatment to be pursued. Whatever be the exciting cause, the line of treatment is essentially the same.

Importance of treatment. It is to be borne in mind, in the treatment of vaginitis, especially of gonorrhœal origin, that the vagina being lined with pavement epithelium, and possessing relatively few glands, is more nearly allied to the external skin than to a mucous membrane. A vaginitis tends to run a light and short course compared with a urethritis in the male, and would, in itself, be of comparatively little importance were it not for the following reasons: In the first place, the surface of the vagina being thrown into folds and rugæ, any treatment by injections or applications, given in the ordinary way, is apt to reach only the summits of the ridges, leaving the parts between the rugæ untouched. Hence the disease holds on in parts of the vagina. There are certain

localities which are less easy to be reached than others, where the last vestiges are apt to remain and become obstinate. One is the posterior cul-de-sac, then the lower part of the anterior wall, where the rugæ are especially prominent, and, lastly, two little pouches, one on each side, just back of the hymen and in front of the attachment to the pubic arch.

The second reason why a specific vaginitis is not to be regarded lightly is the liability and tendency for the inflammatory condition to extend along the cervical and uterine mucous membrane into the tubes, and even to the peritoneal membrane in the immediate vicinity. The gravity of this sequence of events can hardly be overestimated. Many a woman has been doomed to a life of invalidism by a long series of inflammatory processes which had their origin in a vaginitis. For these reasons the prompt and persistent treatment of the initial lesion is extremely important.

Treatment. The principal reliance is naturally to be placed on topical applications to the diseased surface. These may be made by means of medicated suppositories, substances applied on cotton either in the form of a tampon or applied directly to the mucous surface with a cotton-stick, or by injection either of simple water or some solution. For the majority of cases the latter is the best method. If taken right they bring every part of the mucous membrane into direct contact with the remedial agent, and thus prevent the disease lingering in the folds and cul-de-sacs. To be of value such injections should be copious; six quarts at least should be taken, with the patient lying on

the back and the hips raised above the level of the shoulders, so that the vagina will be distended and every part brought into contact with the water. The water should be hot, 110° F., or, better, 115° to 120°, and in my experience simple hot water has been sufficient in the majority of cases. The heat is a valuable agent, and is efficient on account of its property of contracting the bloodvessels, such contraction and consequent anæmia of the parts lasting for hours. The douches should be taken three times a day. Where there is a great deal of irritation as a result of the discharge, I advise adding a tablespoonful of powdered borax to the last two quarts of the douche. Sometimes the hot water alone will not suffice, in which case some astringent may be added, as alum, a teaspoonful to the quart, or sulphate of zinc, ʒj to two quarts. It is better to use the astringent solution only as the last part of the douche, letting the first few quarts remove all the secretions and diminish the sensitiveness.

A weak solution of corrosive sublimate (1 to 5000) may also be used in this way, and, in view of the recent researches which have demonstrated the gonococcus of Neisser to be the important factor in gonorrhœa, it should be faithfully tried.

After the acute symptoms have subsided, and the marked sensitiveness has gone, if irritation and leucorrhœa still persist, and there seems to be a tendency for the trouble to become chronic, packing the vagina with medicated cotton is a valuable resource. The packing is done in the same way as for the overcoming of adhesions as described in the chapter on

displacements, only the vagina need not be tamponed so tightly. Treating the glycerine dressing with a solution of alum will make an astringent tampon which may be left in from two to three days, as the patient finds it comfortable. The glycerine and alum combine a depleting with an astringing effect.

Urethritis. The urethritis which often accompanies the vaginitis, and is frequently the most troublesome symptom, is best treated by internal remedies. The indications are to render the urine non-irritating, and to give such substances as will, when excreted in the urine, exercise a beneficial effect on the inflamed urethra as the urine flows over it from time to time. The first of these indications is met by alkalies and diuretics. Sweet spirits of nitre will sometimes act very efficiently. I have had better results from citrate of potash in infusion of buchu, freshly prepared, one part of the former to ten of the latter. Very frequently the irritation will be better relieved by benzoate of ammonia in five- to ten-grain doses every three hours. This should be given well diluted with water.

Copaiba in the form of capsules may be added, but it does not seem to be as efficacious with women as with men. In obstinate cases, urethral suppositories of tannic acid or iodoform may be tried, or the urethra sprayed with a solution of nitrate of silver, thirty grains to the ounce, through the endoscope.

The treatment of specific vaginitis has been minutely described, because it is by far the most common form of acute vaginitis, and because the same treatment is applicable to vaginitis from other

causes, though, as a rule, the simpler methods given are all that are necessary.

Follicular vaginitis. There is another form of acute vaginitis which is occasionally met with, called granular or follicular vaginitis. This is not of gonorrhœal origin, as a rule. It is very liable to recur at longer or shorter intervals. In the few cases that I have seen, no special cause for the fresh outbreak could be ascertained. When examined, the vaginal mucous membrane is found covered with the characteristic creamy secretion, and projecting everywhere from this yellow base are the reddened tops of the papillæ. They are sometimes so prominent, and bleed so easily, that rubbing the cotton-stick over them to wipe away the secretion will denude them of their epithelium. This appearance may be very generally distributed over the vagina, or confined to certain localities. If not general, the anterior wall and the cul-de-sacs are the favorite spots, and it is in these places that it resists treatment most stubbornly.

The most effectual treatment is the application of glycerite of tannin—glycerine four parts, tannin one—at first with a cotton-stick every other day, giving an opportunity for three douches a day, and later on a light tampon of cotton, which is allowed to remain two days, and, of course, precludes the use of the douche.

Chronic vaginitis. Chronic vaginitis sometimes starts as an acute attack, but quite as often is chronic from the beginning. The latter form is most commonly the result of endometritis, the irritating discharge from the cervix setting up a chronic form of

vaginal inflammation, which is relieved when the endocervicitis is brought under control by appropriate treatment. When not so dependent, and requiring special treatment, the most effectual is the application of a solution of nitrate of silver. As the vagina is very much more sensitive in some cases than in others, it is well to begin with a moderately weak solution of twenty grains to the ounce. This can be applied, by means of the cotton-stick, thoroughly to the whole vagina, using Sims's speculum, care being taken not to neglect the posterior wall, but to paint that as the speculum is withdrawn. A cotton dressing should then be placed in the vagina to keep the walls apart. If improvement does not follow, a stronger solution of thirty grains to the ounce may be used.

We occasionally meet with a very obstinate form of chronic vaginitis, characterized by very persistent and troublesome itching, and by the presence on the walls of the vagina of a more or less thick deposit of what might be called inspissated secretion, a cheesy, smegma-like substance without especial odor. The vagina in these cases is very dry, and the secretion, when rubbed off with the cotton-stick, does not adhere to the cotton, but comes away in small rolls or fragments.

Occasionally such cases will improve under the milder applications of tannin and glycerine, or solutions of nitrate of silver; sometimes more radical treatment is necessary.

Such treatment consists in the thorough application of the solid stick of nitrate of silver to the whole

surface of the vagina. This should be done under ether, and the walls of the vagina kept apart either with a glass plug or with a moderately firm cotton tampon. Considerable inflammation usually follows, with purulent discharge, and after the first two or three days the plug or tampon may be removed and hot douches given three times a day.

CHAPTER X.

METRORRHAGIA.

METRORRHAGIA, or hemorrhage from the uterus outside of the menstrual period, is, as regards its causation and treatment, so closely allied to menorrhagia in many cases, that much that has already been said in treating of that subject is applicable here. Yet there are certain special features which should be considered, to complete the general subject of uterine hemorrhage.

The general indifference of women to a flow of blood from the genital organs has been alluded to. The fact that it normally occurs every month for a long series of years, so accustoms the woman to its appearance, that not only excessive flowing at the regular period is allowed to go on unattended to, but even irregular hemorrhages are often unheeded.

The latter have, however, a much more profound significance, and it is the duty of every practitioner to impress upon his patients, as far as he can, the importance of not neglecting a symptom which may mean the most serious trouble.

As a rule, metrorrhagia is a symptom of some definite local disorder, something tangible, which can be discovered and treated. Occasionally the general debility which results in loss of tone of the uterus, and

hence excessive menstruation, will also express itself by an intermenstrual flow. So, too, general pelvic congestion, irrespective of any local cause, such as cellulitis, displacements, or areolar hyperplasia, will sometimes be accompanied by metrorrhagia as well as menorrhagia. But these are exceptional cases. We generally look to some cause inside the womb for an explanation, and only when a most careful examination has failed to reveal the existence of such a cause should we be contented to explain it on the theory of some general circulatory disorder. While this holds true of hemorrhage occurring at any period of a woman's life, it is especially so after the menopause. No dread of shocking the modesty of the patient, or dislike to question closely into any such subject, should make us hesitate for a moment to propose, and, as far as we can, insist upon, an examination being made to determine the cause of this unusual symptom. The very fact that the sexual activity is past, and, as patients have said to me, they "thought they were all through with such things forever," makes them hesitate to speak about it, and too often the physician yields to the prejudices of the patient. The not infrequent cases of epithelioma of the cervix occurring after the menopause, where the earliest symptom was metrorrhagia, and where no attention was paid to it for months, until other symptoms supervening made an examination imperative, which then revealed malignant disease so far advanced that no radical cure could be thought of, illustrate forcibly the importance of this advice.

Causes. The causes of metrorrhagia are so many that to enumerate them all would cover pretty much the whole field of gynecology. There are a few that are so much more frequent than the rest that they deserve special mention.

In a table given in a monograph on uterine hemorrhage by Dr. Sneguireff, of Moscow, the following facts are shown: By far the most frequent cause of hemorrhage from the uterus is cancer, constituting twenty-five per cent., or a quarter of all the cases we meet with. The next most common cause is fibroids, nineteen per cent.; then metritis, ten per cent.; endometritis, eight per cent.; abortions and subinvolution, five per cent.; and twenty-two other less frequent causes, ranging from three per cent. to one per cent. each. A second table gives the relative frequency of the different causes of uterine hemorrhage at the different ages. From this we see that nearly ninety per cent. of cases of hemorrhage from cancer occur in women over thirty-five, and fifty-eight per cent. in those over forty-five; that nearly fifty per cent. of cases of hemorrhage from fibroids are in women over thirty-five, and twenty-five per cent. in those over forty-five, showing that nearly half of all cases of metrorrhagia that we meet occur in the years about the menopause, and are due to the two grave affections, cancer and fibroids. The only other causes which are frequent enough to be considered important are chronic inflammatory affections of the uterus (metritis, endometritis, and subinvolution) and abortions.

Characteristics of hemorrhage from various causes.

There are certain peculiarities in the flow in individual cases which help to throw light on the cause. Thus, a not uncommon history is that for a varying length of time, a few weeks or months, sexual intercourse has been painful and always followed by the appearance of blood, usually only in small amount. In such cases as these we may reasonably conclude that there is some trouble with the vaginal cervix, and that the hemorrhage is caused by the friction of the male organ against the diseased surface. This suggests either beginning epithelioma, or such extensive laceration of the cervix with eversion that a large raw surface is exposed, or a granular erosion, or, rarely, the presence of a small polyp projecting from the os externum.

Hemorrhage coming on irregularly, but present more or less every day, starting after unusual exertion or fatigue, and ceasing on lying down, means congestion with degenerative changes in the endometrium, the most common of which is fungoid degeneration. The hemorrhage in these cases is persistent, but, as a rule, slight. There are also apt to be the characteristics of flowing from the presence of retained products of conception, though in these cases the monotony is likely to be varied by the occasional occurrence of a smart hemorrhage. Fibroids, on the other hand, are apt to cause quite severe hemorrhages, followed by periods of immunity.

When to examine. The principles by which we should be guided in the question of making an examination in cases of metrorrhagia, differ in some

respects from those which hold good in cases of menorrhagia. In the latter case it is wise to avoid examining during the flow, if possible, and it is, fortunately, not often necessary. With metrorrhagia two considerations should govern us in our decision. If the history leads us to expect an interval of absence of flowing within a short time, we may wait for that, provided the hemorrhage is not severe. So, too, in case of a slight continuous hemorrhage, if it has lasted only a short time, and the ordinary remedies have not been tried, the examination may be deferred a few days, and the effect of simple treatment watched. If, however, it has lasted continuously, weeks and perhaps months with but little change, we should not delay our investigation.

It is wisest, in view of the fact that the larger proportion of cases of metrorrhagia is due to some definite local lesion, not to postpone the examination too long. The natural repugnance of a woman to be examined when she is flowing, should be given its due weight, but should not lead us to neglect ascertaining the cause of her trouble.

If the hemorrhage is very profuse, it must be checked at once without waiting to make a diagnosis, and the rules for this have been given in full in the chapter on menorrhagia.

Cancer. Certain well-known causes are at once evident when we proceed to make a vaginal examination. This should be done with the patient on the back, and the very utmost pains should be taken to make the manipulation as gentle as possible, in order to avoid starting up or increasing the hemorrhage.

If it be a case of malignant disease of the cervix, the examining finger finds, instead of the smooth, rounded surface of the neck of the womb, a roughened, hardened, irregular mass filling the upper part of the vagina, or a crater-like excavation surrounded by a ridge of indurated tissue. In the first case we have the so-called cauliflower growth before necrosis has begun; in the second the breaking-down process has resulted in the formation of a more or less extensive loss of tissue. The presence of a thin, pinkish-colored, dirty, and foul-smelling discharge is confirmatory evidence of cancer.

Sloughing fibroid. There is one condition of affairs which may be confounded with malignant disease, and that is, a sloughing fibroid. Here there is found an irregular, sloughing mass in the upper part of the vagina, easily bleeding on manipulation, and the source of a very offensive discharge. The differential diagnosis is made by discovering the narrow pedicle surrounded by the ring of the cervix. If the mass is large and the pedicle small, it may be impossible to reach sufficiently behind the growth to make the relation out, until relaxation has been gained by ether.

Laceration of the cervix. Very extensive laceration of the cervix, with eversion and cystic degeneration, may simulate the beginning of malignant disease, and it is in just such cases that the diagnosis is important, for the early stage is the favorable time for operation. A doubtful diagnosis may be cleared up by submitting a portion to the microscope. The most suspicious-looking part is selected and a small

bit of tissue removed with scalpel or scissors. If there is any free hemorrhage it may be checked by placing against the cut surface a pledget of styptic cotton with a string attached to it, by which it may be withdrawn after twenty-four hours. The removed portion should be examined under the microscope as soon as possible.

Causes inside of the uterus. If the cervix is found free from disease, we must look to the interior of the uterus for the cause of the hemorrhage. If it can be done, the best and quickest method of procedure, combining both diagnosis and treatment, is to dilate the uterus sufficiently either to admit a scraping instrument or the finger, and to explore thoroughly the interior. The rules for the use of dilating instruments have been fully given in the chapter on endometritis, and the use of tents will be spoken of later. It sometimes happens that the prolonged hemorrhage has so softened the uterine tissues that no special dilatation is necessary. The most common conditions inside the uterus, which we find as causes of hemorrhage, are hyperplastic endometritis, mucous polypi, and the presence of retained products of conception.

We come now to the consideration of the treatment for these various causes of metrorrhagia.

Treatment in cases of cancer. First, cancer. The primary question to be answered in all cases of malignant disease is whether a radical operation is possible. If the disease is confined to the cervix, the uterus freely movable, and the broad ligaments free from inflammatory thickening, there is hope that

the whole diseased tissue can be removed, and a radical operation should be advised. The choice of operation to be performed does not come within the scope of this work. So, too, with the palliative operation of curetting and applying the actual cautery or chloride of zinc. These all require special skill and an armamentarium sufficient to meet emergencies of alarming hemorrhage, which is very likely to occur.

There remain a large number of cases in which nothing can be done but make the patient comfortable. The indications to be met are to control pain, to arrest hemorrhage, and to neutralize the foul discharge. Morphine is our sheet-anchor for the first, and there is no possible objection to its being freely given. That form should be chosen which experiment shows is best borne.

The other two objects of treatment may be best attained by a simple procedure, viz., keeping the sloughing cavity packed with iodoform gauze. By so doing it is kept fairly dry, the odor is neutralized, hemorrhage is controlled, and in a small degree pain is quieted. It should be renewed as often as it becomes saturated, which will be every day or every other day at first, later every third or fourth day, and may be kept up for weeks or even months with great comfort to the patient.

If, for any reason, this cannot be carried out, anti-septic and cleansing injections should be given, as, for example, of liq. sodæ chlorinatæ or carbolic acid. Alum injections, if there is bleeding, will sometimes be of service.

Laceration or erosion. When the hemorrhage is found to proceed from an extensive laceration of the cervix or an erosion, the only safe course to pursue, in view of the well-known clinical fact that malignant disease develops on such raw, inflamed surfaces, is to cover the unhealthy and abraded tissues with normal mucous membrane. This necessitates an operation, for the description of which the reader is referred to more extensive text-books.

Polypi. A polyp, if small and with a well-defined pedicle, may be seized with forceps drawn forcibly down, and snipped off with scissors. Should there be much hemorrhage, it can be restrained by a tent of styptic cotton. Oftentimes no dilatation is necessary, as the attachment is not infrequently low down in the cervical canal. Larger submucous fibroids require special and more complicated operative measures.

Causes inside the uterus. If the cervix is found free from disease we must look to the interior of the uterus for the cause of the hemorrhage. In order to satisfy ourselves as to the existence of some intra-uterine disease it is necessary to explore the cavity of the uterus either with instruments or with the finger. For this purpose some dilatation is requisite, less where only instruments are to be used, more if it is necessary to introduce the finger.

Moderate dilatation. For the more moderate dilatation it is best to give ether, and forcibly dilate first with a series of graduated dilators, and then with Ellinger's instrument, in the manner described when speaking of dysmenorrhœa (pp. 141, 142.) The

interior may then be curetted, or an intra uterine growth grasped with forceps, and the presence of some of the causes of hemorrhage ascertained.

Digital exploration. In some cases it is advisable to introduce the finger, and, except in cases where the uterine tissues are softened and easily dilatable, the dilators in ordinary use rarely give sufficient space to admit the finger. Even if the blades of Ellinger's dilator are separated to an inch, or even an inch and a half, the resulting opening is oval and will not allow the finger to pass the internal os. Even if it can be forced through with the exercise of considerable force, the firm constriction of the finger at the rigid os internum will so benumb the sense of touch that no thorough or satisfactory exploration of the interior can be made. To palpate the endometrium throughout its whole extent, the canal must be widely dilated and the muscles so paralyzed that there will be no contraction.

In the majority of cases this can only be accomplished by tents, and this is, in my opinion, almost the sole use of tents which is justifiable.

Tents. Tents are composed of substances which have the property of absorbing moisture and swelling. They are occasionally used in surgery to dilate a sinus, but are chiefly used in gynecology to stretch the canal of the uterus for purposes of diagnosis and treatment.

They were formerly used much more than now, as there is a growing distrust of them on the ground of their not being aseptic. This fear is well grounded, and, as stated above, it is only in the rare cases where a digital exploration of the interior of the uterus is

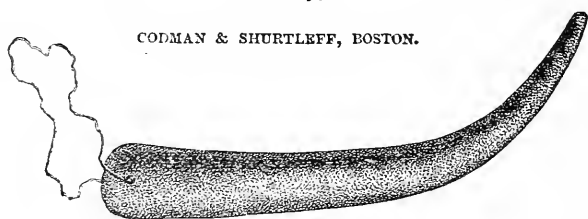
required, that I would advocate their use. Hence a brief description of them and their method of application is in place here.

The principal substances which are used for this purpose are sponge, laminaria, and tupelo. They each have their peculiar virtues and their appropriate sphere of action.

Sponge tents. Sponge tents (Fig. 97) have been in use longer than the other varieties. When compressed into a small space, sponge absorbs water

FIG. 97.

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Sponge tent.

very greedily, and in expanding exerts considerable pressure. Sponge tents are found in the shops of various sizes, and are either straight or curved, as the case requires. Their roughness, and the quickness with which they swell when moistened, render them less well adapted for introduction into the uterine canal, unless it has been somewhat dilated previously.

Advantages. The advantages of sponge tents are that they begin to swell almost immediately, and so quickly attach themselves to the rugæ of the mucous membrane that they are not forced out, an occurrence which often happens with the other varieties, and that

they have a peculiar softening effect upon the tissues of the cervix which renders them especially valuable in certain conditions of great rigidity of the tissues.

Disadvantages. The great objection to their use is that their employment has been not infrequently followed by serious inflammatory trouble of septic origin.

In the first place, the sponge itself may contain germs. In the second place, the sponge very readily absorbs the secretions of uterus and vagina, which quickly decompose and develop septic material which may be the source of infection. When to all this is added the fact that the meshes of the sponge insinuate themselves so intimately into the irregularities of the mucous membrane that on the removal of the tent abrasions occur, it will be seen that the most favorable conditions for septic infection exist.

For this reason it is wise to resort to their use only when other means of dilatation have been tried and found ineffectual, and such cases must be very rare, since in the last six years I have not found it necessary to use them in a single case.

If they are used, both they and the field of operation should, as far as possible, be made thoroughly aseptic. The sponge should be treated by boiling, and immersion in a solution of corrosive sublimate; the tent should be wound under spray, and kept in sterilized tubes. The vagina and the cervical canal should be cleansed with corrosive sublimate solution both before the introduction of the tent, during its stay in the uterus, and at every step of any operative procedure subsequent to its removal.

Laminaria tents. Laminaria, or sea-tangle tents (Fig. 98), are made from the root of the sea-plant *Laminaria digitata*. They are small, round, smooth rods ranging in diameter from three to seven millimetres. They swell rather slowly but quite powerfully, and exert

FIG. 98.



Laminaria tents.

FIG. 99.



Tupelo tent.

more force, but with less softening of the tissues, than the sponge tents. They are quite easily forced out, at least through the internal os, but do not tend to absorb the secretions nor to become foul. As regards the danger of sepsis, they are safer to use than sponge,

and should always be preferred and tried first. They come curved as well as straight, hence are adapted to those cases of flexion where the introduction of a straight tent is difficult without the use of more traction and pushing than is good for the uterus.

Tupelo tents. The third variety in common use is the tupelo (Fig. 99), made from the root of the *Nyssa aquatica*. These come in larger sizes than the laminaria, hence are better adapted to cases where there is already some dilatation, where even the large size laminaria tents would be liable to slip out. They do not dilate with the force of the laminaria, and lie between the laminaria and the sponge in the matter of softening the tissues. They are of more value when moderate dilatation is desired for therapeutic rather than diagnostic purposes.

Having briefly considered the general characteristics of the different kinds of tents, we will now describe more in detail their various uses and methods of employment.

Choice of tent. The choice of the kind of tent to be employed depends upon the character of the cervix. If softened and patulous, as large a size as possible of the tupelo tent should be introduced, and this alone will often effect dilatation enough. If the canal is narrow, the cervix hard and unyielding, preliminary dilatation should be effected by a small laminaria, and this should be replaced and the full stretching secured by a second tent or set of tents.

Use of second tent. It is a fact that the introduction of a second tent vastly increases the danger of starting up inflammatory processes in the uterus or its neigh-

borhood, but in the cases where a digital exploration is necessary there is only the choice between either making use of two sets of tents, or with imperfect dilatation forcing the finger or a series of graduated sounds through the still narrow os internum, with a good deal of violence to the uterus. Of these two methods the first seems to me, if used with careful antiseptic precautions, the safer.

If it is proposed to use two sets of tents, avoid sponge tents for either. Use a tupelo if the canal is patulous, or a laminaria if narrow. When all the dilatation to be gained by the first has been attained, remove it, and, noting the size it has swelled to at the internal os, choose the second set. If the dilatation is uniform, put in the largest-sized tupelo. If the internal os, as is often the case, remains to some degree constricted, pack in two or three laminaria tents side by side, whose joint calibre shall be about that of the internal os. As these are the smallest and smoothest, they are the best adapted to such a condition as that described above.

Method of introducing tents. The patient should be treated as though she were to undergo an operation. Such a procedure should never be done at the physician's office, but at the patient's house. She should have had a thorough evacuation of the bowels the day before, and an enema on the morning of the visit, if necessary, and should have eaten lightly. She should be dressed only in her night-dress and wrapper and stockings, as she will have to lie in bed after the tent is placed. Have a table prepared as has

been explained in the first chapter, and placed before a good light.

Tents are best introduced with the patient in Sims's position, and with the use of Sims's speculum. The vagina should be thoroughly sponged out with a solution of corrosive sublimate 1 : 2000. The cervix is then seized with a tenaculum, which should be deeply imbedded in the anterior lip, and considerable traction exerted so as to straighten the canal as much as possible and thus facilitate the introduction of the tent.

It, the tent, is grasped firmly with the uterine forceps, and is then well covered with carbolized vaseline. This is better than dipping it in a solution of corrosive sublimate, as it very quickly begins to swell. It is then carried well in through the internal os, so that the end with the string attached is just visible at the os externum. It is sometimes immediately forced out by the contractions of the uterus, in which case it must be held in position with a cotton-stick while a cotton dressing soaked in corrosive sublimate solution is placed against it to retain it in position. A second dressing is often necessary. The patient should then be lifted back to bed and strict quiet enjoined. She should use the bed-pan. If the pain becomes severe, it is best quieted with suppositories of morphine from $\frac{1}{6}$ to $\frac{1}{4}$ of a grain given as often as occasion requires. Six to eight hours is long enough to secure the full effect of almost any tent, and as it is important to shorten as much as possible the time during which the uterus is subjected to this treatment, the insertion of the first tent should be arranged accordingly. If put in in the early morning, the uterus

will be ready for exploration or treatment in the afternoon. It is not too long to let the tent stay in over night, and often after the pain produced by the swelling of the tent during the first few hours is over, especially with the help of morphine, some sleep may be obtained.

The temperature should be watched, and if it rises over 100° F., and such rise is preceded by chilly sensations or accompanied by nausea and vomiting, the tent should be removed, and all further interference be dispensed with.

When the tent is removed, and any manipulation in the way of exploration or treatment is attempted, the same care should be exercised and the same strict use of antiseptics be practised. The vagina should be washed out with corrosive sublimate, and all instruments and the examining finger dipped in the same.

Second series of tents. If a second series of tents is to be placed, as is sometimes the case when the interior is to be explored by the finger; the same precautions should be observed as with the first. If several are to be placed, two or three may be tied together with the most delicate thread, and passed in at once, the number being governed by what will pass in easily, and others may then be crowded in by their side. If either set has to be left in over night, it had better be the first. This is then changed in the morning, and the final examination made in the afternoon.

Method of digital exploration. The patient should be etherized and placed on the back for the digital

exploration of the interior of the uterus. As the finger is not long enough to reach the fundus when the uterus is in its normal position, it should be pushed down on the finger with the hand over the abdomen. In this way it can be brought so low that every part of the interior can be palpated. If the uterus is retroverted, as is often the case, the fundus must be brought forward so that the hand over the abdomen may grasp it. If the dilatation is so inadequate that considerable force would be necessary to introduce the finger, it is better to suspend all operations and wait a month, and then secure more thorough dilatation.

In the case of inflammatory conditions of the lining membrane, curetting and applications to the membrane, as described in the chapter on endometritis, are appropriate treatment.

Pregnancy or abortion. Hemorrhage occurring during pregnancy or after an abortion will now be considered a little more in detail. We occasionally meet with cases where, in the early months of pregnancy, second, third, or fourth, with or without known cause, there is a slight hemorrhage, bright at first, then continuing, for weeks it may be, as a brownish discharge. Abortion may follow very soon after the first appearance of the bleeding, or the hemorrhage may persist, but gradually growing less and less, and pregnancy go on uninterruptedly. The rational treatment in such cases is rest in bed, hot-water douches two or three times a day, and small doses of opium if there is pain. The patient should be kept as absolutely quiet as possible until the brownish discharge has

wholly ceased. If the examination shows a retroflexed uterus, which sometimes seems to be an exciting cause of the trouble, it should be replaced, and held in position by a pessary.

Should the amount of the flow and the growing severity of the pains make it probable that a miscarriage is imminent, tamponing the vagina firmly with cotton should be resorted to. This will check the hemorrhage and assist in the dilatation of the os. The method of doing this and the best material to use have been described when treating of menorrhagia. The tampon should be removed at the end of twelve hours, or sooner if hemorrhage has occurred through it, when the foetus will often be found expelled and lying with clots of blood on the top of the cotton. This is more likely to be the case if we are given a history of severe cramp-like pains, lasting with growing intensity for some time, and suddenly ceasing. The duration of the pregnancy will have some influence on the complete expulsion of the contents of the uterus. If the miscarriage occur within the first two months, the ovum is apt to come away entire in its membranes; from the second to the fifth month the membranes break, the foetus comes away, but the after-birth remains, and is expelled in a few hours, or is partially adherent, and has to be removed; from the fifth month on, the process resembles natural labor, and the placenta is thoroughly loosened by the contractions of the uterus and expelled in due course.

Retention of placenta. The retention of some part of the placenta, a quite common cause of metror-

rhagia, is, therefore, more likely to occur in miscarriages from the second to the fifth month. If the foetus has come away and the placenta remains behind, the question is, how long to wait before interfering. My own experience has been that it is useless to wait more than a few hours; that if the placenta does not spontaneously come away within that time it is probably adherent. There is no harm in waiting twelve or even twenty-four hours, provided there is very little active hemorrhage going on. The examination is apt to be rather deceptive, for we usually find a portion of the placenta projecting from the os, and are apt to think it is free, but caught there, and that it will be expelled in a short time.

Method of removing retained placenta. The dangers of delay are, renewed and alarming hemorrhage, and later septicæmia if the placenta begins to undergo decomposition. It is, therefore, wise to anticipate these occurrences by prompt interference. Ether will usually be of great help, though it is not absolutely necessary. The patient should be placed on her back, on a table if possible, the knees flexed on the abdomen and held by an assistant. Hands and instruments should be disinfected with corrosive sublimate and a weak solution should be freely used throughout the operation. The finger of the left hand should be carefully introduced as far as possible into the canal of the uterus, the fundus being crowded down on it by the right hand on the outside of the abdomen, and the place where the placenta is attached found if possible. Sometimes the dilatation is so complete that this may be readily done and

the adhesions broken up. Where it cannot be accomplished in this way, Emmet's curette forceps (Fig. 100) may be used to grasp the placenta and bring it away piecemeal. As long as any hanging shreds can be felt this process may be kept up, and portions too small to be seized with the forceps can

FIG. 100.



Emmet's curette forceps.

be scraped off with the sharp curette. Sometimes an instrument like a spoon or scoop can be carried completely round the circumference of the cavity of the uterus and the adherent placenta shelled off.

There is usually very little reaction after this procedure, nor are injections, either intra-uterine or vaginal, necessary. There is apt to be some foul-smelling discharge for a few days, but the uterus quickly regains its normal size, and all hemorrhage is definitely arrested.

Congestion of the uterus, with resulting hemorrhage, is occasionally due to a retroflexion of the uterus, especially when bound down by adhesions. The flowing may be independent of changes in the mucous membrane of the uterus. The treatment is by the systematic packing of the vagina, which serves the double purpose of arresting the hemorrhage and removing the cause. This should be kept up until the uterus has regained its natural position.

While relying mainly upon local measures to check the hemorrhage in cases of metrorrhagia, general treatment should not be neglected. Tonics, such as iron and arsenic and the dilute mineral acids, should be given, and the drain upon the system should, as far as possible, be compensated for by generous diet. More detailed rules for the hygienic measures necessary have been given in the chapter on menorrhagia.

Apostoli claims to have found the most powerful and reliable hæmostatic in galvanism. For this purpose the positive pole is introduced into the uterine cavity and a large dispersing negative electrode placed on the outside of the abdomen. The current should be strong (50 to 150 milliampères) and the whole uterine canal exposed to the hæmostatic action, which is what the treatment, to be effectual, must really consist of. This method is still on trial.

CHAPTER XI.

DISEASES OF THE OVARIES AND TUBES.

THE affections of these organs may be properly considered together, because, first, it is often impossible clinically to separate them; second, many of the most prominent symptoms are common to diseases of both organs; and, third, very often the most careful bimanual examination will fail to definitely exclude one or the other.

Comparatively few of the affections to which the ovaries and tubes are liable come within the scope of this work. The most important if not the most frequent pathological change which we find in the ovary is an enlargement, either solid or cystic, which calls for operative treatment, and the various forms of inflammation of the tubes may prove so stubborn to the ordinary forms of treatment as to call for severe operative measures for their relief.

As regards the ovaries, therefore, the affections which claim our consideration here are malpositions, acute and chronic inflammation, and neuralgia.

Prolapse of the ovary. The rules for the examination of the ovaries have been laid down in Chapter II., p. 50. From that it will be seen that the normal ovary is not at all easily reached, unless the vagina and the abdominal walls are unusually relaxed. When

displaced, however, it comes nearer the vagina and within reach of the examining finger. It is then usually felt as a rounded or oval body lying either laterally from the uterus in the lower border of the broad ligament, or more often behind, in Douglas's cul-de-sac. When felt in the latter position the uterus will in the majority of cases be found to be either retroverted or retroflexed. In this position the ovary, if enlarged, may be confounded with the retroflexed body of the uterus, and if careful bimanual examination fails to determine satisfactorily the position of the uterus the use of the probe is necessary. The absence of the ovary from its normal position will help to clear up the diagnosis. Pressure on the prolapsed ovary gives rise to a peculiar sickening pain, which may in some cases amount even to nausea. It may be movable or fixed. If the latter, the probabilities are that there are adhesions due to old inflammatory processes, and in proportion to their extent and firmness is the prognosis for a complete cure more unfavorable.

Prolapse from relaxation. The ovaries may become prolapsed in two ways: First, from relaxation of the natural supports. This most commonly occurs after parturition. As the uterus enlarges the ovaries are drawn upward and the ovarian ligaments put on the stretch. If the natural process of involution of the uterus does not take place we have subinvolution, a process which has been described in Chapter VIII. The same process may affect the attachments of the ovary, and as a result the ligament remains length-

ened, and the enlarged ovary sags downward, usually toward Douglas's pouch.

We also find this displacement of the ovary in women who have never borne children, where the relaxation is a result of general muscular debility in which all the pelvic organs share. The vagina is relaxed and distensible, the uterus becomes easily displaced, usually ante- or retroverted and somewhat prolapsed, and one or both ovaries descend from loss of support.

Prolapse from contraction of adhesions. The second way in which the ovaries become displaced is by being drawn out of position by the formation of adhesions, and their subsequent contraction. The displacement in these cases is not apt to be so great as in the preceding class, but the symptoms are more marked, and the treatment more difficult. The ovary cannot be so easily isolated, but is often bound up in a mass composed of the ovary, tube, and inflammatory thickening of the neighboring cellular tissue. It is most often felt laterally from the womb, less often behind, and occasionally in the very rare position in front of the uterus between it and the bladder.

Symptoms. The principal symptoms are pain in the ovarian regions, especially on walking or standing, pain on defecation, due to the pressure of the fæces on the displaced ovary, dyspareunia, and in some cases reflex nervous symptoms.

Treatment. The proper treatment of this condition varies with the cause. If the organ is prolapsed from subinvolution the same principles of treatment which were laid down in treating of the similar condition of

the uterus will apply here. The indications are twofold—to reduce the size of the organ and to strengthen the ligaments. These results may be best attained by the use of applications, by massage, and electricity.

Applications. Owing to the position of the ovary, applications to it cannot be so directly applied as to the uterus. If, however, they are thoroughly made to the part of the vagina nearest the displaced organ, they undoubtedly do good. The most effectual is Churchill's tincture of iodine applied by means of a cotton-stick, with the aid of Sims's speculum. This should be done frequently—every other day if possible. A cotton dressing is placed in the vagina after the application and allowed to remain twenty-four hours.

Pain may be sometimes relieved by the use of iodoform applied on cotton, and allowed to remain two or three days. It is of advantage to moderately fill the upper part of the vagina with glycerine dressings, the upper ones being sprinkled with iodoform, so as to get the double benefit of the pressure in lifting the ovary and of the depletive action of the glycerine.

Massage. Where there is not much sensitiveness, massage will sometimes be of benefit. This is accomplished by gently kneading or rubbing the tissues laterally from the uterus, between the finger in the vagina and the hand on the outside. The finger is passed up as high on the side of the uterus as possible, so as to include the whole of the broad ligament; it and the hand are then approximated, and the two are drawn downward, allowing the tissues to

slip between them. This manœuvre is repeated several times every second day, and may be followed by an application of iodine.

Electricity. The well-known properties of the faradic current in stimulating muscular fibre would naturally suggest its use in these cases of prolapse of the ovary, and a limited experience with it has proved exceedingly satisfactory to the writer. Any simple battery may be used, as the current need not be strong. My method of application is as follows: I use a Gaiffe battery, and place one pole in the cul-de-sac corresponding to the displaced ovary, and the other over the region of the ovary on the abdomen. The sitting lasts from five to ten minutes, every other day if possible, and the strength of the current is gradually increased, until in some cases the full amount of the battery is employed. In addition to its stimulating effect upon the muscles, the faradic current has also a marked sedative action, and in most cases considerable relief from pain follows its use.

Pessaries. In a certain number of cases something may be gained by supporting and raising the ovary by a pessary. This can be only indirectly done, as the ovary itself is too far removed from the vagina to admit of direct pressure being brought to bear upon it. In the rare cases where it is displaced into Douglas's cul-de-sac without any retroversion or flexion of the uterus, a bulb pessary may, by filling up the posterior pouch, raise the ovary somewhat and relieve symptoms. This can only be done when the organ is not very sensitive, and there should at

all times be borne in mind the possibility of the ovary being caught between the pessary and the sacrum.

Where the ovary is drawn backward by the retroverted or flexed uterus, raising the womb by means of a proper support will sometimes replace the ovary. These are the most satisfactory cases to treat. It is occasionally necessary to hollow out the bulb of the pessary on the side corresponding to the prolapsed ovary to avoid pressure on it. (Fig. 101.) Where the

FIG. 101.

CODMAN & SHURTLEFF, BOSTON.



Bulb pessary for prolapsed ovary.

ovary is drawn out of its normal position as a result of inflammatory processes in the neighborhood, and is bound down by adhesions, the prognosis is more unfavorable. The treatment then is similar to that for chronic cellulitis, of which affection this indeed is but a complication. Applications, packing, and the use of galvanism hold out the most promise of relief, but in many cases the suffering is so great, and state of invalidism so pronounced, that an operation for the removal of the uterine appendages is justifiable.

Acute ovaritis. Acute inflammation of the ovary is a rare affection. Its most common cause is septic

infection following parturition, occasionally it is a result of gonorrhœa, very rarely of direct injury. It may also occur in the course of acute zymotic diseases.

It is often difficult to distinguish it from localized pelvic peritonitis, as the sensitiveness is too great to admit of a thorough examination. Exceptionally we can differentiate it from other inflammatory affections of the pelvic organs. In these cases we find an enlarged and exquisitely sensitive ovary, usually smooth but sometimes nodular, lying somewhat lower than normal and somewhat movable. The pain is circumscribed, aggravated by walking or standing, and at times radiating down the corresponding thigh or up toward the breast. The left ovary is more often affected than the right.

The usual termination is in resolution, or more rarely in the formation of an abscess.

During the acute stage there should be no purely local treatment. The danger of setting up inflammation of the adjacent peritoneum or cellular tissue, or aggravating it if such exist, would contra-indicate any vaginal applications.

Absolute rest in bed, the application of iodine to the abdomen over the affected ovary or of leeches to relieve the pain, morphine if necessary (preferably in the form of suppositories), and stimulants, are the methods of treatment which will be most efficacious.

Chronic ovaritis. This affection does not often follow the acute form, but beginning insidiously, gradually develops, until we find the structural changes characteristic of chronic inflammation of other organs.

The ovary is at first larger, more engorged with blood, gradually shrinking as interstitial growth progresses, until in the final stages we have a small cirrhotic ovary which has entirely lost its functional activity.

Its most common cause is undoubtedly gonorrhœa, the inflammation extending from the endometrium and the tubes to the peritoneum and ovaries. In a small proportion of cases it follows the puerperal process without the acute stage intervening.

Pain over the affected side, increased by defecation and by walking or lifting, is the most common symptom. Dysmenorrhœa is usually present, and may be merely an aggravation of the usual pain, or there may be in addition severe backache and radiating pains in the thigh and side corresponding to the affected ovary. If there is a coincident metritis or endometritis, the flow is at first profuse, later scanty, and with the diminution in amount there is apt to be increased pain.

The diagnosis is often difficult on account of the great tenderness of the parts. It is probable that in the majority of cases of chronic ovaritis there is also some circumscribed peritonitis. Where the ovary can be isolated and palpated and is found to be enlarged, and the foregoing symptoms are present, we may safely assume that we have this condition to deal with. Where the sensitiveness is so great that the bimanual examination is unsatisfactory, the diagnosis between chronic ovaritis and ovarian neuralgia can often be made only under ether.

The treatment is essentially that for all chronic

affections occurring in the neighborhood of the uterus. Applications of iodine, both internally and externally, to relieve pain, glycerine dressings to reduce congestion, and galvanism are the principal remedies. The greatest relief, especially to the dysmenorrhœa which is often present, is obtained by the application of a leech just before the expected sickness, as described in Chapter IV. This procedure will also have a favorable effect upon the size of the ovary if used in the first stages before the cirrhotic changes have taken place.

Ovarian neuralgia. There is very little to be said about this condition which has not practically been said in describing the other forms of ovarian disease which have been noticed in this chapter. We are forced to put in this class those cases of pain in the ovary where examination fails to discover any displacement or enlargement. As our methods of examination become more perfected and our knowledge of the pathology of ovarian disease more extended, the number of cases of this character will undoubtedly grow smaller.

The treatment does not materially differ from that for chronic ovaritis. In addition to the local treatment, especial attention should be paid to general tonic measures, inasmuch as in many of these cases the ovarian neuralgia seems to be only a manifestation of a general nervous debility.

The digestion should be aided when necessary, the bowels regulated, healthful exercise prescribed in moderation, and regular and restful sleep promoted by simple means. The use of opiates both for this

end and to control pain, should be studiously avoided, as the chronic nature of this trouble would very easily favor the formation of the opium habit. A great deal may be accomplished by inspiring a cheerful and hopeful disposition on the part of the patient, to which end the physician himself should cultivate his powers of treating the multifarious symptoms as they arise with promptness and variety of resource.

The attention to the *morale* of the patient is of the greatest importance in that class of cases where profound nervous symptoms are associated with, or possibly caused by, the ovarian trouble. These are the cases of hysteria, with hemi-anæsthesia or hysteropileptic attacks, which have been especially studied by Charcot. Their treatment comes more properly within the province of the neurologist.

As has been stated in the beginning of this chapter, the consideration of ovarian tumors does not fall within the scope of this work.

Where the ovary enlarges progressively beyond the size which we find in congestion and chronic inflammation, and continues to grow in spite of treatment, the only measure which commends itself to-day is an operation for its removal. The question of its advisability and the performance of the operation come within the province of the skilled surgeon or specialist.

Diseases of the tubes. The Fallopian tubes or oviducts have only lately begun to receive the attention they deserve. It is only within a few years that the true pathology of a large class of pelvic disorders has been recognized. Under the head of pelvic

cellulitis was grouped those common cases, where pain, thickening, and other evidences of inflammation of the structures at either side of the uterus were the prominent symptoms. It was supposed that the cellular tissue which is found between the layers of the pelvic fascia and surrounding the ligaments and bloodvessels became affected, and that the process which in exceptional cases went on to suppuration and abscess formation in the majority of cases pursued a more chronic course, subsided, and left as its result thickenings and deposits of lymph.

Post-mortem investigations, however, revealed that the disease in the larger proportion of these cases started from the tube, beginning usually as a catarrhal inflammation; secondarily affecting the peritoneum, and by thickening of the coats of the tube, occlusion of its orifices, and the accumulation of pus or serum in its lumen, and a matting together of the various adjacent structures, forming the thickened masses which had been supposed to be the results of inflammation of the cellular tissue.

In the light of these new views as to the pathology of these cases, more careful bimanual examination resulted in the recognition of the enlarged and sensitive tubes as the primary pathological factor.

Catarrh. Catarrh of the tubes, which is probably very common, rarely exists alone. It is most often a result of an extension of inflammation from the vagina to the lining membrane of the uterus and thence to the tube, and the more evident symptoms of the initial affection mask the special symptoms of the salpingitis. There are certain symptoms which,

however, are characteristic of the invasion of the tube.

Symptoms. Pain is the most common of these. From a heavy dull ache in the hypogastrium, which is characteristic of endometritis, it changes to paroxysmal attacks of a sharp colic, felt in one or both iliac regions. There is pain on walking or reaching, and this is very often not relieved on lying down. Patients not infrequently think they can perceive a swelling over the affected side or sides.

The discharge from the tube under these circumstances has no such peculiar characteristics that it can be differentiated from the discharge present in endometritis alone. It may, however, differ in this respect. It sometimes happens that the uterine end of the tube becomes temporarily occluded and the secretions collect and distend the tube. There supervenes an attack of colicky pain, followed by a considerable discharge of muco-purulent material or pus, with immediate relief to the pain. Where this sequence of events is repeated at short intervals, it is characteristic of catarrhal salpingitis.

Causes. The most common cause of tubal catarrh is gonorrhœa. This affects the tube by extension from the vagina through the uterus in the way described above. Simple endocervicitis or endometritis may also be followed by salpingitis, for we find this affection in young unmarried women with intact hymen. Anything which causes congestion of the uterus, such as sudden stoppage of menstruation, acute displacements from jars or violence, too

frequent or violent coitus, etc., may result in catarrhal affection of the tubes.

As long as the uterine end of the tube remains patulous and the discharge has free exit, we have what is properly called catarrhal salpingitis. If the opening becomes sealed and the secretions of the tube collect, we have a tumor formed, the contents of which are either serous, constituting what is called hydrosalpinx, or purulent, in which case it is called pyosalpinx. Where the secretions cannot find an exit into the uterus and are forced through the abdominal end, the result is apt to be a localized peritonitis, with the subsequent formation of adhesions—a very serious complication, which adds much to the gravity of the case.

Diagnosis. The recognition of diseased tubes before there is enlargement is difficult from a simple bimanual examination without ether. When they are enlarged, either from a thickening of the coats, which is one result of chronic catarrh, or from an accumulation within their lumen, they may be felt as swollen, sensitive structures from two to three inches long, and from the thickness of a lead-pencil to the size of a sausage, running from the uterus in the upper part of the broad ligament toward the sides of the pelvis. Sometimes the ovaries may be made out as distinct bodies; often they have become so bound up in the adhesions that are apt to be present, that only an undefined mass, including tube and ovary and thickened peritoneum and cellular tissue, can be felt.

In very many of these cases, owing to the changes which have occurred during the progress of the dis-

ease, and the great sensitiveness of all the pelvic organs, ether is absolutely necessary before a correct diagnosis of the existing conditions can be made out.

Treatment. Of late years the medical treatment of these affections has been largely superseded by surgical measures. The recognition that in a large number of cases of pelvic peritonitis the underlying cause is tubal disease, and that by far the majority of swellings at the sides of the uterus which were formerly called pelvic cellulitis are really swollen tubes, led to their treatment by laparotomy and removal. Recently it has been pretty generally conceded that there has been too general a resort to the knife, and more attention is now given to the relief and cure of tubal disease by milder non-operative measures.

Cases of simple catarrhal salpingitis can often be cured by such general treatment as we apply for the relief of similar conditions of the endometrium. We cannot, to be sure, make direct applications to the tube as we can to the uterus, but in the way of depletion and counter-irritation we can accomplish much. Hot-water douches will accomplish something, but the relief of the congestion of the pelvic organs can be effected much more thoroughly and satisfactorily by means of the glycerine tampon. For this purpose I use a prepared wool which is very elastic, therefore easily borne, will hold a good deal of glycerine, and is not so heating as cotton. My practice is to paint the cul-de-sacs thoroughly with iodine, then apply a single large wool tampon which will fill the upper half of the vagina, soaked in glycerine, which

is to be worn from two to four days as it remains comfortable. There will be a profuse watery discharge, necessitating the use of two or three napkins a day. This accomplishes the double purpose of depleting the pelvic organs in the most thorough manner possible, and at the same time supporting them and so relieving pain, and enabling the patient to take more exercise.

A method of treatment which has been advocated recently is that of drainage of the tubes through the uterus. Under ether the uterine canal is stretched with graduated sounds; the cavity is then packed with iodoform gauze, which is changed every second day for a week. If necessary the same thing is repeated at the end of a month.

Galvanism has been recommended for the milder forms of tubal and ovarian disease, and deserves a trial.

These measures are of course only applicable to the simpler conditions of catarrhal salpingitis or purulent salpingitis, where the uterine end is patulous and free drainage exists, and there has been very little secondary peritonitis. The graver forms, especially of pyosalpinx and hæmato-salpinx, usually ultimately demand operative interference, either by puncturing and evacuating the contents from the vagina, or by removing the tubes with their contents by abdominal section.

CHAPTER XII.

PELVIC PERITONITIS AND PELVIC CELLULITIS.

PELVIC peritonitis and pelvic cellulitis form the last group of diseases which we will consider. Their relation to each other was supposed to be a very intimate one before our present knowledge of their pathology. It was thought to be true that while they presented distinct symptoms, yet as a rule they were both present in any given case to a greater or less extent. While it is probably a fact that pelvic cellulitis rarely exists without some implication of the peritoneum overlying it, yet the converse can certainly not be maintained.

For convenience' sake they will be treated of in the same chapter, since very much that is applicable to one is also to the other. This is especially true of the symptoms of the initial stages, at which time a differential diagnosis is often impossible, and also of the treatment of both the acute and chronic forms. As the pain and sensitiveness make a physical examination of very little value, we are obliged to rely largely on rational signs. Later, when the first acute symptoms have subsided, the special features of the particular form of inflammation present render a diagnosis possible.

Pelvic peritonitis. Pelvic peritonitis is a very common affection. This is especially true of the chronic form, which is one of the most frequent diseases of the pelvis that we meet with in general practice.

Causes. The most frequent cause of localized peritonitis is the escape of irritating fluids from the tubes. This may be the contents of inflamed tubes, especially the result of gonorrhœal infection transmitted from vagina or uterus, or in rare cases of fluids injected into the uterus, and forced through the tubes by the contractions of the womb. Other causes are sudden stoppage of menstruation, venereal excesses, cold, and very commonly unskilful instrumentation, especially if antiseptic precautions are not observed. Minor operations on the pelvic organs, such as dilatation, curetting, or the use of tents, if not done aseptically, or if the patient is allowed to move about too freely afterward, are liable to be followed by a septic peritonitis. Even the adjustment and wearing of an ill-fitting pessary is sometimes followed by this serious result. While in the light of modern researches in bacteriology, it is probable that most cases of pelvic peritonitis are of septic origin, yet it seems to be a fact that traumatism, without the possibility of the entrance of germs, is the exciting cause in some cases.

Symptoms. The initial symptoms of acute pelvic peritonitis are very severe. There is usually a chill, followed by fever of moderate degree, intense pain in the abdomen, and, in severe cases, nausea and vomiting.

The pain is so severe that the knees are drawn up

to relax the abdominal muscles, and even the weight of the bed-clothes is painful. There is usually some tympanites present. In a few days, after the serous or fibrinous exudation has begun to be thrown out, there is not infrequently considerable rectal tenesmus. The acute pain lessens, but there remain considerable soreness and tenderness of the abdomen. The rise of temperature in these cases is not always proportionate to the frequency of the pulse. Where the disproportion is marked, so that we have a great deal of pain, with very quick, thready pulse, but comparatively little rise of temperature, the case is to be considered serious.

If resolution occurs, there is a gradual subsidence of the acute symptoms, and a slow return to health, though there usually remains, to remind the patient of what she has been through, some loss of strength, or inability to take wonted exercise, or chronic pain in the pelvis, possibly associated with some disorder of menstruation.

Very many cases are first seen by the physician at this later stage, not because the acute symptoms are neglected, but for the reason that this chronic condition of the pelvic peritoneum develops slowly, without any acute stage. They may be said to be chronic from the beginning. The beginnings are so insidious that they are often unheeded or neglected; and, in fact, the causes are often unavoidable. We find this form in one class of women as the result of what Noeggerath calls latent gonorrhœa. Women whose husbands have had gonorrhœa, but have supposed themselves cured, and

prostitutes who, in addition to the influences of excessive coitus, have also suffered from gonorrhœa, and, in some cases, from syphilis, present typical examples of these chronic forms.

A second class of women who suffer in this way are those whose occupation necessitates long-continued or violent muscular exertion. We find it in women who run the sewing-machine a great deal, or shop-girls whose occupation requires them to stand and reach, or mill-hands who have to push or draw heavy parts of machinery.

The symptoms here are pain in the lower abdomen, aggravated on standing, or walking, or other muscular exertion; menstrual disorders, most usually dysmenorrhœa associated with scanty menstruation; and the evidences of a generally depreciated state of health, such as dyspepsia, constipation, sleeplessness, increased nervousness, and inability to stand fatigue.

Vaginal examination in the acute stage. In the acute stage we have to depend more upon the rational signs than upon the vaginal examination for our diagnosis. The tenderness of the uterus and adjacent parts, and of the whole abdomen, is so great as to preclude the possibility of learning much from the bimanual examination. It is almost impossible in the earlier stages to distinguish between pelvic peritonitis and cellulitis. It is important, however, to make the examination, because we occasionally meet with patients who present many of the symptoms of one of these graver affections, where the whole trouble is a peculiar hyperæsthesia of the

abdomen. This is all the more misleading since it is apt to follow some usually slight manipulation of the genitals either instrumental or otherwise, or to be associated with the menstrual period, and in these respects resembles more closely the onset of peritonitis or cellulitis. There is the same sudden development of severe pain in the pelvis, spreading over the whole abdomen, tympanites, fever, and prostration. The physical examination, however, shows a difference. In the diseases we have been considering there is increased heat of the vagina. As the finger reaches the cervix, there is usually found such marked sensitiveness that the slightest touch causes extreme pain. The attempt to palpate the uterus bimanually usually fails on account of the pain caused. The uterus is found to be less freely movable than usual, the cul-de-sacs somewhat obliterated, and a sense of boggy resistance to be felt, usually more pronounced at one side than the other. When peritonitis predominates, the sensitiveness is more apt to be general, and there is less of a defined tumor to be felt; whereas, in cellulitis the increased fulness is apt to be confined to one side, and there may be considerable bulging of the cul-de-sac of that side. In the purely hyperæsthetic condition that we have spoken of, although the examination may be difficult on account of the sensitiveness, yet we can, by careful manipulation and the exercise of tact, in the majority of cases, satisfy ourselves that the uterus is movable, and that there is no such fulness at either side as we find in beginning cellulitis.

In the chronic stage. As the disease assumes a more chronic form we find the exudations growing harder, and if they attain any size we can palpate them through the abdomen. Their exact position and character can be clearly made out only by vaginal exploration. If the process of absorption goes on they become smaller and harder, and in rare cases may disappear altogether. Usually, however, there remain slight thickenings, which the practised touch can recognize.

Chronic pelvic peritonitis usually results in the formation of adhesions between the different organs of the pelvis. In this way the various structures become matted together without making a mass of any considerable size. The bimanual examination shows diminished mobility of the uterus, and indefinite thickenings at both sides of that organ, from which the tubes and ovaries cannot be isolated. If the process is mainly limited to the peritoneal fold of Douglas's pouch, we find the uterus drawn back into a position of retroversion or flexion.

Occasionally we find the following condition of things: As soon as the acute inflammation has sufficiently subsided to permit of a thorough vaginal examination, we find the uterus perfectly immovable, and surrounded by an exudation which is as hard as a board. As has frequently been said, it suggests plaster-of-Paris having been poured in around the uterus and allowed to set. A similar mass of exudation is thrown out over the whole surface of the uterus, so that it is symmetrically enlarged. Subsequent layers may be deposited at intervals, without

the reappearance of any acute symptoms, until in well-marked cases the uterus may equal in size that of the last months of pregnancy.

Remote results of chronic pelvic peritonitis. Where the process of absorption has gone on as far as it will, and there is nothing left but what may be called the cicatrix, the changes found by the vaginal examination are very meagre. Only the practised touch can detect the slight abnormal thickening, and the difficulty is to connect the pathological change with the symptoms. These latter are out of all proportion to the former. In addition to the direct effects of the exudation, in the way of pain and loss of mobility, there may follow, as a result of the interference to the circulation of the uterus, irregularities of menstruation, endometritis and subinvolution, and disturbances of function of bladder and rectum, and later, especially in women of a nervous temperament, general nervous phenomena, which may vary in severity from nervous debility to nervous prostration. For this reason these comparatively slight affections assume an importance which the anatomical changes alone would not entitle them to.

Treatment. The treatment of acute pelvic peritonitis resolves itself into measures to relieve pain and to limit the process as much as possible. At the onset of the disease, and in the early stages, the pain is very severe, often agonizing, and absolutely demands the use of morphine for its relief. It is best given in the form of hypodermatic injections, where the physician himself, or a competent nurse, is at hand to administer it. Where this cannot be done,

suppositories are the best substitute. Quarter-grain doses are usually none too large, and these may at the beginning have to be repeated every hour or two. The use of morphine should, however, be suspended just as soon as the condition of the patient warrants it. The treatment of this affection has changed somewhat in this respect within a few years. Formerly it was supposed that the limitation of the process could be secured most perfectly by as much as possible preventing the peristaltic action of the bowels, and with this idea large doses and the long-continued use of morphine were advocated. The patient was kept for days in a dozing, semi-conscious condition, not noticing her surroundings, but able to be roused. The result was a paralysis of the bowels, very obstinate and annoying tympanites and the locking-up of the secretions.

It is better practice to move the bowels by simple laxatives or enemas every day or two. This is especially true where the peritonitis is probably of septic origin. Here at the first onset a brisk cathartic by calomel or salines will apparently check the process. Hot and stimulating applications to the abdomen are often very soothing. Owing to the very great tenderness, anything heavy cannot be borne, hence the rubber bottle filled with hot water is not so suitable. The best form of application is spongio-piline, which can be wrung out in hot water and placed over the abdomen. It is light, will retain the heat and moisture, and is cleaner and handier than a poultice. If there is much tympanites, spirits of turpentine may be poured on the spongio-piline in drops to the

amount of fifteen or twenty, scattered here and there. When the spongio cannot be procured, flannel covered with sheet rubber or oil-silk makes a fairly satisfactory substitute.

In the very acute stage the vaginal douche should not be given, as the pressure of even the stream of hot water may be too violent. Later, after the sensitiveness has diminished, it will be of great service.

Treatment of chronic cases. In those cases above described, where the uterus is symmetrically enlarged by successive layers of exudation, the most satisfactory results are obtained by blisters to the abdomen. The patient must be kept quiet in bed or on the lounge. The best plan is to apply a piece of cantharidal plaster, perhaps two inches square, over the most prominent part of the abdomen and allow a good blister to form. This should be carefully punctured and dressed from day to day. Within a week or ten days a second one may be applied over another spot on the abdomen, and a succession of six or eight such blisters may be necessary. The action of the blisters may be aided by the application of iodine to the cul-de-sacs, and some relief to the sense of dragging from the increased weight may be afforded by supporting the uterus with glycerine dressings.

In the more chronic forms a great deal can be done by regulating the patient's mode of life, avoiding a recurrence by care in the matter of exercise, quiet at the time of the menstrual period, abstinence from coitus, and building up the system with tonics.

Supporting and depleting the uterus with glycerine tampons will enable the patient to take more exer-

cise without discomfort or danger than she otherwise could.

The treatment of the results of pelvic peritonitis, as shown in thickenings deep in the pelvis, and adhesions, has been given in detail in the discussion of Malpositions with Adhesions, in Chapter VII., and outlined in the treatment of Chronic Ovaritis, in Chapter XI. Applications either directly to the vaginal wall or on medicated cotton, massage, and electricity are our main dependence.

Electricity. The use of this last agent is one of the most valuable advances in gynecological treatment of recent years. A mild galvanic current should be used frequently—every other day, if possible—placing one pole in the vagina, as near the inflammatory thickening as possible, the other over the abdomen. I have seen these deposits disappear more quickly by this method than any other I have used. Sometimes substituting the faradic current for the galvanic has seemed of benefit. This is probably due to its effect upon the circulation. Where there is venous engorgement from loss of elasticity in the walls of the vessels and the surrounding tissues, the contraction and stimulation secured by the faradic current is of more benefit than the absorption caused by the galvanic. Alternating the two kinds at short intervals is sometimes followed by very good results.

Massage, as described in Chapter XI., will often materially aid in the absorption of the thickened masses and the overcoming of adhesions.

Pelvic cellulitis. This is a very much rarer affection than was formerly supposed to be the case. Its

most common cause is abortion or parturition, but it may follow any direct injury to the uterus, such as an operation. I have seen it as the result of the irritation from an ill-fitting pessary.

Symptoms. The symptoms in the beginning of the affection are so much like those of pelvic peritonitis that a differential diagnosis between the two is not always possible at this stage. There is the intense pain in the lower part of the abdomen, chill, fever, possibly rectal and vesical tenesmus, and usually some tympanites.

In cellulitis the pain is apt to be lower and confined to one side, the fever does not usually run so high, and the morning remissions are greater. There is usually more tympanites in peritonitis.

In the majority of cases the attack passes off by resolution, leaving as a reminder some sensitiveness at the place of the original inflammation, pain on exercise, a feeling of weight in the pelvis, and sometimes inflammatory thickenings which can be appreciated by the touch.

If the acute stage does not go on to resolution, and more or less complete absorption, we find after a partial subsidence of the severe symptoms the evidences of the formation of pus. These consist in localized pain, especially on motion, absence of appetite, coated tongue, and especially the occurrence every afternoon of hectic with fever. The morning temperature is at most elevated only a degree or two, and may, indeed, be normal, while the evening shows a regular rise of from one to three degrees. There are apt to be chills or at least chilly sensations

occurring at irregular intervals, and on the subsidence of the fever profuse perspiration. These symptoms point to the formation of pus, and demand special treatment.

Vaginal examination. In the acute stage there is so much tenderness that very little can be learned by bimanual examination. Later, when the acuteness of the symptoms has subsided, we find a thickening and fulness, confined to one side of the uterus usually, though very exceptionally it may be behind in Douglas's cul-de-sac, or even in front between uterus and bladder. The uterus is usually pushed over to the opposite side from the one affected. Later, when contraction has occurred, it may be drawn toward the side which has been the seat of the trouble, and we have a latero-version or flexion. Where pus forms, if the portion which breaks down attains any size, a peculiar softening of the mass at one point or another, with a gradual increase in bulk of the whole exudation, denotes this change.

Treatment. In acute pelvic cellulitis, we have as a rule less pain than in peritonitis, and the indication for large doses of morphine is not so urgent; absolute rest should, of course, be enjoined, and quinine or antipyrine, or phenacetine given to modify the fever if very high. Soothing applications to the abdomen will be found of great comfort to the patient. Usually the tenderness is not so great but that the hot-water douche can be borne; several large injections of six or eight quarts should be given daily.

As regards general treatment, the diet should be at first milk or gruel, alternating with beef-tea; later,

broths and soups. The strength should be kept up by means of brandy or champagne.

If after the acute symptoms have passed there are still high temperature and rigors, and it is evident that pus is forming, general supporting and stimulating treatment is necessary, and as soon as fluctuation can be made out, surgical interference to evacuate it. Morphine should be avoided in these cases, as it is important to disturb the digestion and free action of the bowels as little as possible. The bowels should be encouraged to move every day by means of simple cathartics or by enemas; a few days of experience will show which of these methods is best.

Treatment of constipation. As in both the affections which we have been considering the bowels often do not move for several days, and it is important that when they do move it should be as gently as possible, I have thought it best to detail the method which I have followed, and which applies to prolonged constipation whether accidental or designed.

The patient is first given an injection of one or two bulbfuls of sweet oil with a Davidson or similar syringe. If the constipation has lasted a week or more, and especially if the nourishment has been such that there is probably considerable accumulation in the bowels, it is well simultaneously with the first injection of oil to administer by the mouth two-thirds of a tumbler of the solution of citrate of magnesia. The oil is to be retained, and to be followed by a second injection of the same in two hours. As soon as there is shown a tendency to have a movement, a large injection of warm water

is to be given. In this way the most obstinate constipation is, as a rule, easily relieved. In severe cases additional injections of oil may be needed, and another dose of magnesia if the first fails to have an effect in six hours. Where the rectum is full of hardened fæces, injections of a few drachms of pure glycerine will have a wonderful effect in dissolving and bringing away the hardened masses.

CHAPTER XIII.

NECESSARY INSTRUMENTS AND APPLIANCES.

I AM every year questioned, by the students of the graduating class, as to what instruments they should supply themselves with for the ordinary gynecological work which they would naturally meet with and perform in the course of their practice as general physicians. Most of the important instruments have been alluded to in the course of the preceding chapters, and some of them fully described. It will be of advantage, however, to devote some space to a more comprehensive description of what may be considered necessary. The following list will comprise them all :

Sims's speculum.

Cleveland's speculum.

Goodell's speculum.

Depressor.

Cotton-sticks (6-12).

Tenacula.

Probe.

Simpson's sound.

Peaslee's sound.

Applicator.

Forceps.

Tampon extractor.

Tent applicator.

Scissors.

Bistoury.

Repositor.

Vaginometer.

Nott's dilator.

Goodell's dilator.

Hanks's dilators.

Syringe.

Curette.

Placental forceps.

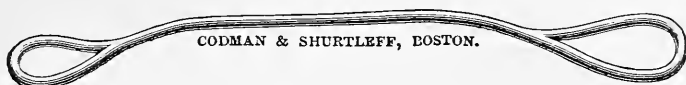
Speculum. First and foremost is the speculum. By far the best, for reasons pointed out in Chapter I., is Sims's (Fig. 7). In choosing one at the instrument-maker's, see that it is light, with a comparatively thin blade and slender shank. The smaller blade should be just a trifle broader than the forefinger, for use where the vagina is narrow and the hymen intact—the so-called virgin blade. It would be well, also, to own Cleveland's self-retaining speculum (Fig. 12), which can be used when an assistant cannot be obtained.

Next in value to the Sims's is the bivalve speculum, and of the numerous varieties to be found in the shops, Goodell's (Fig. 17) is perhaps the best. Its special merit is in the fact that it is base-expanding, and thus gives the most room where it is needed, at the outlet, which most bivalve specula fail to do.

Depressor. When Sims's speculum is used, a depressor for the anterior vaginal wall is needed. A cotton-stick will usually answer perfectly well for this purpose; but where there is much redundancy of tissue, especially if the vagina is long, some broader

depressor is needed. The one shown in Fig. 102 is very satisfactory.

FIG. 102.



Depressor.

Cotton-sticks. Cotton-sticks (Fig. 103), besides being useful as depressors, have a variety of other uses. Half a dozen is none too many, and a dozen is better, as it is often necessary to use a number in rapid

FIG. 103.



CODMAN & SHURTLEFF, BOSTON.

Cotton-stick.

succession. They are used to remove secretions from the vagina, and to make applications to the vaginal mucous membrane.

Tenaculum. A Sims's tenaculum (Fig. 104) is used to steady the cervix when passing the probe in a

FIG. 104.



CODMAN & SHURTLEFF, BOSTON.

Tenaculum.

difficult case, when introducing a tent, or when reducing a displacement by the manual method.

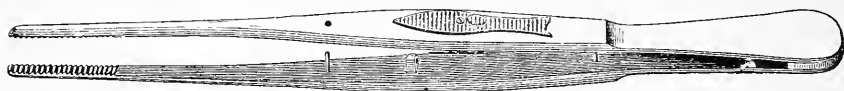
Probe. The uterine probe (Fig. 34) should be of pure silver, so as to bend readily, but should not be too fine, else it will be too easily bent, and may break off.

Sounds. Simpson's sound (Fig. 35) is of value in ascertaining the calibre of the canal, and occasionally for replacing a displaced uterus. The larger Peaslee's sound (Fig. 36) is also a good instrument to have, as its passage will demonstrate the presence or absence of any stricture which is of pathological import.

Applicator. The applicator (Fig. 92) is really a flattened probe, and is used for making applications to the uterine mucous membrane in the way explained in the chapter on endometritis.

Forceps. The uterine forceps (Fig. 105) is principally employed in placing dressings in the vagina,

FIG. 105.



CODMAN & SHURTLEFF, BOSTON.

Uterine forceps.

and for systematic tamponade of the vagina for hemorrhage or to overcome adhesions. In order to exert sufficient force to pack firmly, the forceps should not be held as a pen, between the thumb and forefinger, but the end should rest in the palm of the hand. For this reason it is important that the end should be rounded and not pointed, as it is sometimes made. See that the catch slides easily and fits accurately into the notch.

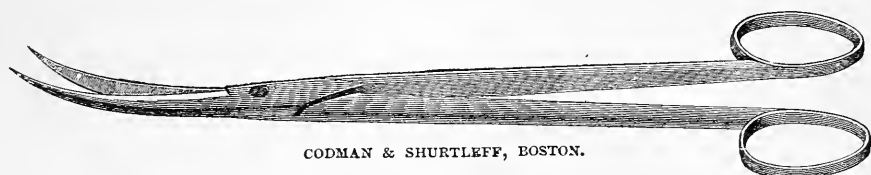
Tampon extractor. The tampon extractor (Fig. 30) has been referred to. It is a double screw, and its use is apparent from its name.

Tent applicator. For the introduction of a styptic tent into the uterus, a whalebone staff, somewhat

flexible and tapering to a point, is used (Fig. 31). This has a short metallic slide, which is pushed up against the tent to hold it in position when the staff is withdrawn.

Scissors. One pair of scissors is a useful instrument to have, and the most universally practical variety is the long, sharp-pointed kind usually called wire scissors (Fig. 106). These will serve to snip off any little growths from the vagina or the cervix.

FIG. 106.



Wire scissors.

Bistoury. A long, slender, double-edged, sharp-pointed uterine bistoury (Fig. 23) is used to puncture or scarify the cervix, and to evacuate the so-called ovula Nabothi or retention cysts.

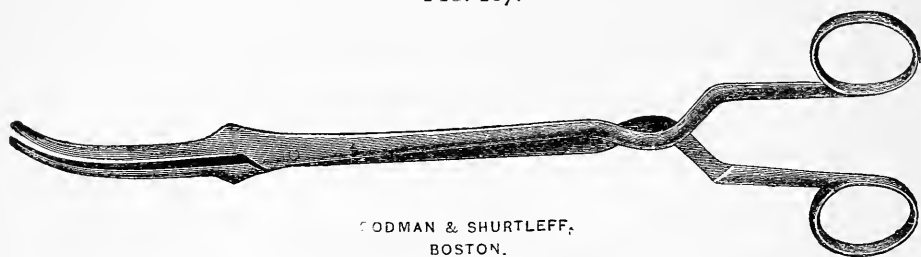
Repositor. The safest repositors to use in the few cases which admit of the use of an instrument are Emmet's or Kingman's (Figs. 61 and 65). The method of using them was described when treating of displacements.

Vaginometer. Baker's vaginometer (Fig. 68) is useful in measuring the width of the outlet of the vagina with reference to the adjustment of a support.

Dilators. Inasmuch as moderate dilatation of the canal, either with a specially devised dilator or with a graduated set of dilators, is often useful in dysmenorrhœa, or for applications to the lining membrane, it is well to have suitable instruments for the purpose.

Nott's light uterine dilator (Fig. 107) will answer very well for the first indication, and a series of Hanks's hard-rubber dilators (Fig. 37) for the second. For more thorough dilatation, Goodell's modification of Ellinger's heavier instrument (Fig. 40) should be used.

FIG. 107.



Nott's uterine dilator.

Syringe. A siphon uterine syringe is described on page 100 (Fig. 25). The syringe described on page 235 (Fig. 91) is indispensable in the treatment of endocervicitis. Its object is to draw out of the cervix the plug of mucus filling it, in order that the application may reach the diseased membrane.

Curette. Another useful instrument is the dull-wire curette (Fig. 95). This is of use in removing hypertrophic glandular tissue from within the uterus.

Placental forceps. This variety of forceps (Fig. 100) will help the general practitioner out in many an emergency, and should be included among the other necessary instruments.

These are all the instruments that will be found necessary in simple gynecological practice, and with these the practitioner should feel well armed.

Cotton dressings. There are various additional appliances which should be included in the gynecological armamentarium. Cotton in various forms will

be found useful, and it is well to keep a supply of the different kinds on hand. First, dry, absorbent cotton to wind on the cotton-sticks and applicator. Then strip-cotton, technically called "sliver," cut into short lengths and wrung out in water and glycerine, and folded, to be used for tamponing the vagina for hemorrhage, or to overcome adhesions. Then the same cotton made in the form of flat dressings, with strings attached so that they can be withdrawn by the patient. Lastly, styptic cotton prepared by drawing out absorbent cotton into very thin layers and soaking it in liq. ferri subsulphatis diluted one-half, and packed away in a moist state. This is then ready for use as a styptic tent, if occasion requires, in the manner explained when treating of hemorrhage.

All these different dressings may be packed tightly in bottles or small metallic boxes, and carried in the hand-bag. If the occasions for the use of the dressings are rare, the addition of a little carbolic acid to the water in which the cotton is soaked will prevent their mildewing. The styptic cotton will keep almost indefinitely.

Solutions and mixtures. There are certain standard solutions and mixtures which are used constantly in gynecological practice, which the physician should keep on hand. They should all be kept in large-mouthed, glass-stoppered bottles. The most useful, and the one most frequently used, is Churchill's tincture of iodine, the formula of which is

| | | | | |
|------------------------------|---|---|---|-----------|
| R _y .—Iodini puri | . | . | . | gr. lxxv. |
| Potass. iodidi | . | . | . | gr. xc. |
| Alcohol | . | . | . | ℥j.—M. |

Another useful application is the impure carbolic acid. A mixture of the two preceding in equal parts, called iodized phenol, is also an important member in this category. The glycerite of tannin (tannic acid, one part; glycerine, four parts) should be kept constantly on hand. A useful mixture is that of iodoform and glycerine, one part of the former to ten of the latter. The disagreeable odor may be disguised by the addition of one drop of the oil of peppermint to each ounce of the mixture. Two solutions of nitrate of silver, one of twenty, the other of thirty grains to the ounce, complete the list.

Block-tin rings and tents. There are a few other things which it is well to have on hand. Some block-tin rings of various sizes, to serve as models for pessaries, will be found exceedingly useful. So, also, a few tents of the different varieties and of several sizes.

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